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ORIGINAL ARTICLES.

DISAPPEARANCE OF YELLOW FEVER FROM HAVANA, CUBA.*

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BEFORE describing the work in Havana, it would be well to run lightly over the history of yellow fever and point out some of its prominent characteristics.

It is an acute disease of a week or ten days duration, characterized by fever, and the prominent symptoms of black vomit and jaundice, from both of which symptoms it is named, by the Spaniards "vomito negro," and in the English language, generally yellow fever. Neither of these symptoms, however, are invariable.

The peculiarity of its habitat has always been remarked upon since anything has been known about the disease. It has been principally confined to the coast of the Gulf of Mexico, though frequently spreading to the Atlantic coast of the United States and of South America, and at times, to the Pacific coast, for a short distance above and below the equator, on the west coast of Africa, and very extensively in Southern Europe. It has never been transmitted to the dense populations of India or China.

This limited spread of yellow fever attracted a great deal of attention and was very difficult to explain. The mosquito theory, however, gives a good explanation of it, China and India heretofore having been too far away for an infected mosquito to be transported to them, or for the disease to get there in man, in such a condition as to infect the mosquitoes of those countries. The disease not being carried as fomites by clothing and merchandise, cannot be carried any farther than the time that can be covered in travel by the life of an infected *Stegomyia*, or that period during which the disease would last in man. The introduction of steam and the passage through the Suez Canal, it seems to me, makes it now possible for the disease to be transmitted to Asia, if circumstances were favorable. But the probabilities are very small. It would be possible in case of a ship becoming infected at Rio or Vera Cruz and going direct via the Suez Canal to some Asiatic port, but the necessities of trade very seldom require this. It is also probable that the *Stegomyia* is not an inhabitant of those countries, though that would not at all be a bar to the spread of the disease. It is quite possible for an infected female mosquito to be introduced to a locality where the stegomyia did not exist, but where the conditions were favorable for her development, lay her eggs, and at the same time, it may be, infect a human being; the eggs would hatch and produce their species, the man would develop yellow fever, and thus the epidemic spread. This is, probably, the explanation of epidemics in Boston and Quebec, where I understand the stegomyia is not native. An infected stegomyia is introduced in the summer when the conditions are favorable; in the old times, probably, before the introduction of a general water supply every house had its own receptacle for water, and when the stegomyia was introduced on a ship during the summer, generally found everything favorable for propagation,—temperature, water supply and all. This peculiarity,—the limited habitat of yellow fever,—could not be satisfactorily accounted for on the theory of fomites, but it is very easily explained on the theory of the mosquito as being the intermediary host. There is no reason why, for instance, if yellow fever were conveyed by clothing as fomites it should not have been more frequently conveyed to Spain, with ships and steamers running from Havana every week, always carrying many soldiers right from the military hospital, who took all their clothing with them, without an attempt at disinfection.

Another marked peculiarity of the disease with regard to habitat was that it was sharply limited by increase of latitude north and south from the equator; another, that it always declined and disappeared on the appearance of frost; another, that it was in general a disease of low altitudes and did not spread in the highlands and mountains. These peculiarities were entirely inexplicable on the theory of fomites, but are easily accounted for now that we know it to be a mosquito borne disease. There is no reason, if yellow fever is simply conveyed by fomites, why it should not spread in high latitudes, as well as near the equator, just as smallpox and tuberculosis do. Or even if the germ were killed by cold, there is always plenty of opportunity about the habitations of man for sufficient warmth for its development, if that were all that is necessary. But the stegomyia is stopped by frost; he can not survive any number of winters in latitudes subject to frost, and at once becomes torpid and hibernates when the temperature falls to the freezing point.

The history of yellow fever between Vera Cruz and the City of Mexico is a very good example of the effect of altitude. Yellow fever is frequently epidemic at Vera Cruz, for many

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years in succession. This city is connected with the City of Mexico by a railroad line, and has with it the most intimate business association. Vera Cruz is really the sea-port of the City of Mexico; all sorts of fabrics which have been exposed to yellow fever during epidemic seasons are daily carried to the City of Mexico. Yet there has been no spread of yellow fever in that city. There have been instances of persons non-immune contracting the disease in Vera Cruz and developing it in the City of Mexico, but never an instance of a case contracted in the City of Mexico. This could not be explained under the theory of its transmission by fomites, but readily, if it could be shown, as is probably the case, that the stegomyia cannot live in the altitude of the City of Mexico.

Yellow fever was known to the Mexicans before the arrival of the whites on this continent. We have records showing that Montezuma, not very long before the arrival of Cortez, had given land and other inducements, to 8,000 families to come from the interior and settle in the neighborhood of Vera Cruz, in order that the losses that had been caused by an epidemic of what appears to have been yellow fever might be made good; and evidently this had occurred more than once. While the record of the symptoms of disease are not sufficiently complete at the time of the discovery of Mexico for us to be able certainly to recognize yellow fever from the description, we can feel reasonably sure that many of the epidemics which affected the explorers at this time were yellow fever. As commercial relations became intimate, the disease spread more widely, until about the latter part of the eighteenth century and the beginning of the nineteenth it looked as if it were going to become the scourge of Europe and North America, and possibly of the whole world. Since that time it has gradually declined, and is at present confined to very narrow limits within the tropics. Now that we know the history of the disease, and that it is only propagated by a single species of mosquito as the intermediary host, this spread and decline can be very readily acounted for.

Yellow fever, as it has affected various localities, has been either epidemic or endemic; epidemic when it appeared at a place, affecting it one season, or a succession of seasons, and then entirely disappearing for a number of years; endemic when it was a constant factor of mortality in a locality, affecting it more or less every year and ever month.

To understand this, let us consider for a moment the course of the disease in the mosquito and in man, as far as we know it. It is evidently a parasitic disease of the stegomyia mosquito which lasts during the whole life of the insect, without apparently having any serious effect upon its general health, and it can be conveyed to the non-immune man at any time during the life of the mosquito. As the insect uses blood only in some relation to ovulation, the female is the only sex that bites, and is therefore capable of conveying the disease. As far as our knowledge goes now, the mosquito introduces its parasite from the salivary glands, as it does the malaria plasmodium. After this introduction, it takes from two to five days incubation in the non-immune man to develop the disease, and in man, judging from the data that we at present have, the disease can only be transmitted to the mosquito within the first three days after its development.

From these facts in the life cycle of the yellow fever parasite, there are many conditions which would stop the spread of yellow fever. In the first place, if the *Stegomyia* could be destroyed in any epidemic or endemic locality, the disease would necessarily stop. Or if non-immune men could be gotten rid of, it would stop the disease with equal certainty; or if the infected mosquitoes could be prevented from biting non-immune men, the same condition would be reached. Or if where there are no infected mosquitoes the non-infected stegomyia could be prevented from biting the infected man within the first three days of his disease, the same result would be accomplished. Or if in any locality the infected *Stegomyia* could be gotten rid of, even if the species still continued to exist, yellow fever would cease; or again, in case the supply of non-immunes should become exhausted, the disease would likewise cease. All these conditions have existed, in fact, either singly or in combination, and their disappearance or concurrence have caused the disease either to permanently disappear, appear epidemically, or become endemic.

Take the temperate regions of North America, Philadelphia, for instance; in the pre-Columbian days, the Indians in that locality probably never had yellow fever, from the fact that there was no communication with the infected area of the West Indies, and no means of infecting stegomyia. As it was settled by the whites and communication with the West Indies became more direct, the first epidemic occurred, during the latter part of the seventeenth century. It affected the whole population and was very severe. It was generally introduced from the West Indies. A sailing vessel in the West Indies tied up at the docks, would almost always get a good supply of stegomyia aboard. In going to an infected port, it would get one of its crew infected, who would introduce the disease on the vessel. On its way back to Philadelphia this man would develop the disease and infect numbers of the mosquitoes aboard. These mosquitoes would infect the other members of the crew, and some sailor from the vessel would develop the

disease ashore, and then start the infection in the city. The disease finding a large non-immune population would spread in every direction, decreasing as the number of non-immunes decreased, and disappearing entirely when frost appeared, which always causes the *Stegomyia* to become sluggish and hibernate. If all the *Stegomyia* died during the winter, that was the last of the disease. If a few survived, the disease was continued, getting less and less severe as the number of non-immunes decreased. Philadelphia in her epidemics has illustrated both conditions. A good many of her epidemics lasted only one year, showing that the cold had killed all the infected stegomyia during the winter. But at one time in the latter part of the eighteenth century, she had yellow fever successively for twelve years or more. The improved sanitation and introduction of water has left in Philadelphia fewer places where the mosquito could breed, and modern quarantine has vastly decreased the number of times at which infection has been introduced, so that probably Philadelphia has now passed from the list of those localities liable to epidemics of yellow fever. But one hundred years ago it far exceeded any other one disease as a cause of mortality in Philadelphia, and looked as if it had become endemic there.

This is a fair example of the history of the disease in localities subject to frost. In such places even under the most favorable conditions, it can only become epidemic, because the cold of winter will necessarily, in the course of time, exterminate the intermediary host.

In the tropics, the disease may be either epidemic or endemic; the only examples of endemicity on this continent are Rio Janeiro and Havana. In some of the large towns, such as Vera Cruz, Santiago and others, the disease, as it did in Philadelphia, can recur for many years in succession, but all other places, except Rio and Havana, have presented a considerable succession of years when they were free from yellow fever, and the causes of this, when we come to think of it, are obvious. It falls under the second head. The human host becomes exhausted.

Take a small community of five or six thousand people in the tropics, with a population of four or five hundred non-immunes, the rest of the population having become immunes by former attacks of yellow fever. The infection of yellow fever is introduced and an epidemic starts among the non-immunes; a certain portion of them have the fever, which continues all during the summer. In the cooler weather of the winter the mosquitoes cease to bite, except under very favorable conditions, and the epidemic subsides, increasing again the following summer as mosquitoes become more active. These conditions continue for a greater or less number of years, until the non-immune material is exhausted, or the non-immunes become so few that the disease cannot propagate, and it therefore disappears until the number of non-immunes again increases, the infection is once more introduced, and the same process is repeated.

Probably no infected mosquito would survive, say, six months, and if he could be prevented during that time from biting a non-immune, the disease would disappear in that locality. I say six months, as we have no accurate data as to the extreme length of life in the mosquito. At Las Animas Hospital we have had a stegomyia mosquito live in captivity for 105 days, and it might well be that if his surroundings were as favorable as they are in a natural state, and if it were protected from its enemies, it might survive considerably longer. It can be readily understood that in a large population of immunes, a considerable number of non-immunes might be present without being able to keep yellow fever alive. Take, for example, a population of 20,000 people, in which there are 100 non-immunes scattered evenly about, and a few dozen infected mosquitoes. These mosquitoes as they bite at random would only stand one chance in two hundred of striking a non-immune, and thus the chances of their giving yellow fever would be very small. We thus see that in any small community, even in the tropics, the disease must necessarily be epidemic from the exhaustion of the non-immunes, and that it takes a considerable number of non-immunes added to the population yearly to keep up the disease. But in the two large centers, Havana and Rio Janeiro, the disease has become endemic, and is present every year and every month, and probably for many years there has not been a day when there was not some case in each of those cities. As far as we can find out from the records, this has been the condition in Havana since 1762, the year of the English occupation, and in Rio Janeiro since about 1850. And the reason why the disease does not die out in these cities is obvious. They are both ports of entry for their respective countries, and have large populations, Havana having 275,000, and Rio about 700,000, with a large foreign immigration constantly coming in. Havana since the American occupation has averaged over 17,000 non-immune immigrants every year. As most of these stay in Havana, they will be a constant source of renewing the disease. The infected mosquito before her death would find an opportunity for biting some non-immune, and he in his turn would infect some mosquitoes, and the constant stream of non-immunes coming in would always supply material for this interchange. The same thing has been taking place at Rio during the last half a century, on account of the large non-immune immigration. In no

other tropical communities do these conditions exist. Vera Cruz, in Mexico, comes nearest to it, but Vera Cruz is a very much smaller city—40,000,—and while a large number of non-immune immigrants disembark at Vera Cruz, comparatively few remain in the city. And though yellow fever will frequently occur in Vera Cruz several years in succession, it will also be absent from the city for a considerable length of time.

At the time that Havana came under the control of the United States, yellow fever, as I have just said, had been endemic for over 130 years, the records showing that during that period the city had never at any time been free from the disease.

The following table, compiled from the official records, from the year 1856 up to the present date, shows that often over 1,000 people died in a year of yellow fever, and seldom less than 500:

DEATHS FROM YELLOW FEVER IN THE CITY OF HAVANA.

YEARS	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878
MONTHS																							
January	....	....	...	....	....	....	....	....	....	....	....	....	...	....	....	18	20	32	7	16	24	8	26
February	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	23	13	23	4	16	24	9	13
March	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	12	4	27	18	32	29	11	5
April	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	54	4	37	22	34	33	8	28
May	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	91	13	127	85	32	103	16	53
June	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	201	68	378	172	142	292	143	184
July	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	234	68	416	361	187	675	249	504
August	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	138	70	127	416	144	250	285	374
September	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	72	59	35	186	102	97	234	179
October	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	55	38	28	91	109	42	185	106
November	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	51	85	5	42	105	31	150	53
December	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	42	73	9	21	82	19	76	34
TOTAL	1309	2058	1396	1193	439	1020	1386	550	555	238	51	591	290	1000	572	991	515	1244	1425	1001	1619	1374	1559

YEARS	1879	1880	188	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901
MONTHS																							
January	11	16	7	9	14	26	4	4	5	8	17	10	10	15	15	7	15	10	69	7	1	8	7
February	13	9	3	11	9	16	3	0	6	8	5	4	3	10	6	4	4	7	24	1	0	9	5
March	6	20	3	14	21	8	1	0	8	14	5	4	4	1	4	2	2	3	30	2	1	4	1
April	13	44	6	18	34	32	2	1	22	24	8	13	5	8	8	4	6	14	71	1	2	0	0
May	40	40	6	84	75	55	3	1	84	26	17	23	7	7	23	16	10	27	88	4	0	2	0
June	237	50	37	176	162	66	4	14	128	36	37	38	41	13	69	31	16	46	174	3	1	8	0
July	475	179	90	195	177	131	13	33	102	74	48	67	66	27	118	77	88	116	168	16	2	30	1
August	417	148	127	73	148	97	34	39	73	113	73	60	66	67	100	73	120	262	102	16	13	49	2
September	148	75	94	56	50	41	32	37	36	63	37	33	65	70	68	76	135	166	56	34	18	52	2
October	44	32	39	33	72	24	41	16	33	48	21	32	48	54	46	40	102	240	42	26	25	74	0
November	31	21	38	36	45	8	22	13	20	33	21	15	24	52	28	23	35	244	26	13	18	54	0
December	9	11	35	24	42	7	6	9	15	21	14	9	17	33	11	29	20	147	8	13	22	20	0
TOTAL	1444	645	485	729	849	511	165	167	532	468	303	308	356	357	496	382	553	1282	858	136	103	310	18

Havana was known to be the only place in North America where yellow fever was endemic, and it was thus a constant source of infection for all the surrounding countries. This was particularly the case for the cities on the Gulf coast of the United States, and the annual financial loss from this cause was very large. It is estimated that the loss caused by the epidemic of 1878 amounted to a $100,000,000. The United States, therefore, determined to bend every energy toward eradicating, if possible, yellow fever from Havana. A Sanitary Department was at once organized and sanitary measures vigorously pushed. These measures were very successful, as far as the general death rate was concerned. In 1898 the last year of Spanish occupation, there were 21,252 deaths, and a death rate of 91.03. In 1899, the first year of our occupation, there were 8,153 deaths, a rate of 33.67. In 1900 there were 6,102 deaths, a rate of 24.40. This remarkable decrease was as gratifying as it was unexpected. Smallpox had been entirely eradicated. But the great result at which we aimed seemed to be as far away as ever. Our sanitary measures, if they had any effect upon yellow fever, seemed to increase it. The cleanest and best built part of the city seemed to suffer most from the disease, and the best fed and best cared for part of the population was that which had the largest rate of deaths from yellow fever. It was the well-to-do class of Americans, and the higher officials on the staff of the Governor-General who suffered out of all proportion to the rest of the population. In 1900, on the staff of the Governor-General, the Chief Quartermaster, the Chief Commissary, one of the aides, and one of the Inspectors-General, all died of yellow fever. And preceding that year the Chief Quartermaster and the Chief Ordnance Officer had died. I mention this to show that the class of

population whose surroundings were the best and as good as it was possible to make them, were suffering most from yellow fever. And the same can be said of the disease generally throughout the city. In 1898 there were 136 deaths; in 1899, 103; in 1900, 310. It looked very much as if the cleaner and better hygienically we got the city, the worse we were making yellow fever.

About this time the Army Board of which Major Reed was president, published the results of their work in Cuba. This work demonstrated that the *Stegomyia* mosquito was the intermediary host of yellow fever. Doctor Carlos Finlay, of Havana, had been maintaining this theory since the year 1880, and had done considerable experimental work on these lines. The Sanitary Department at once went to work on the assumption that the stegomyia mosquito was the only way of propagating yellow fever. We organized the yellow fever work, first, with the view of preventing the female stegomyia from biting a patient suffering from yellow fever. If we could succeed in this, we would, of course, stop the disease when all infected stegomyia had died from natural causes. But in case we failed on this line, we organized work with reference to killing all female mosquitoes that might have become infected in the neighborhood of a yellow fever case. In the case of the failure of these two lines, we organized work looking to the destruction of all larvæ of the stegomyia, with the idea of decreasing as much as possible the breeding of the stegomyia.

To attain the first object, that is, to keep female *Stegomyia* from biting the yellow fever patient, a good system of reporting yellow fever had been gradually worked out. The physician was required by law to report all cases suspected of being yellow fever, and every inducement was given to have this done, by considering the convenience both of the patient and the physician in every possible way. The results show that the plan was successful, and I think after the beginning of 1901 very few cases of yellow fever in Havana were concealed. The immediate method of keeping the patient and mosquitoes apart was that of screening the house at public expense as soon as the case was reported. Ordinarily within two hours after the report was received at the office, the rooms of the patient were entirely screened, so as to completely prevent access of mosquitoes to the quarters. A guard was left at the door to see that the only door communicating with the quarantined area was kept closed, and that only those designated by the sanitary authorities had access to the rooms. The patient was interfered with in no other way. Bedding could be taken in or out, clothing sent to the wash, etc.

To attain the second object, that is, destroy such insects as might have become infected in spite of precautions, or before the patient was screened, pyrethrum powder was burned in all the rooms of the house, and in all of the contiguous houses, the rooms having first been made as tight as possible, and the precaution having been taken to sweep up the mosquitoes from the floor immediately after the fumigation. The mosquitoes were swept up because the fumes of pyrethrum do not kill all the insects, and some will revive when exposed to fresh air. Pyrethrum was used, although not so good an insecticide as other substances, and considerably more expensive than most others. But it was in accordance with our general plan of causing as little inconvenience as possible. Pyrethrum fumes injure no fabric, and it only takes two hours to accomplish the process we used in Havana. In this way we hoped to kill all the mosquitoes infected by the patient concerned; and by fumigating the neighboring houses, to get any that might have escaped.

To accomplish the third object, we went systematically to work to destroy the mosquito larvæ. It was found that the principal points of breeding for the stegomyia mosquito were the fresh water collections in the houses of the city. The general water supply of the city being very hard, every family had some means of collecting rain water for domestic purposes, and these collections were the great breeding points of the stegomyia. Ordinances were issued requiring all collections of water to be made mosquito proof, and a large force was kept constantly at work seeing that these ordinances were carried out. Every house in the city likewise had a cesspool on the premises, in which the sewage from the house was collected. This was another source of mosquito breeding, though not to any great extent for the stegomyia. These cesspools were generally inaccessible, being covered in in various ways. And the breeding of mosquitoes here could only be prevented by constant application of petroleum. We endeavored once a month to put petroleum in each cesspool in the city. In the suburbs, the breeding places were in the marshy ground and irrigation gardens. This was the most difficult problem, and it could only be met by draining wide areas. Where we could not get rid of the water collections in any other way, we used petroleum, but I look upon petroleum in mosquito work as an acknowledgment of defeat, and the most unsatisfactory means of getting rid of the mosquito. Later in the season, as yellow fever began to decrease, we also added measures to prevent the introduction of yellow fever cases from the surrounding country. We established a system of inspection whereby all non-immunes coming into Havana were inspected daily by a medical officer, until six days had expired from the time of their last exposure. This in yellow fever hygiene is an entirely new

measure, as far as I know. It was adopted in England with regard to cholera, and its advantages are obvious, as it does not interfere with commerce and travel in the least. With us it was entirely successful, as of the 1,275 non-immunes coming into the city from infected points, 27 developed fever, and, as far as we know, no case developed yellow fever that was not under the observation of the inspector. These cases, admitted from infected points, were immediately screened, and as far as we could tell, did no harm. The success following these measures directed against the mosquito, were to me very unexpected. The first mosquito fumigation occurred February 4. (You will please recall that during most years in Havana there were more than 500 deaths from yellow fever, and in many, 1,000. In January, 1901, there were seven deaths; five deaths in February; one in March; none in April, May and June; one in July; two in August and two in September, and from that time up to the present, none. That Havana has now passed over a year without a single case of yellow fever, and that in the preceding 130 years there has never been, with possibly three or four exceptions, a year in which there have been less than 100 deaths from this disease, and ordinarily nearer 500.) It had seemed to me that even granted that the mosquito was the only way of transmitting the disease, it would be impossible to affect to any great extent the number of mosquitoes bred, or to kill off the mosquitoes after they had become infected. In any fumigation, no matter how perfect, a considerable number of mosquitoes must escape. But the conditions have turned out very much easier than they seemed. The *Stegomyia* is a comparatively rare mosquito, being, on the average, only about four per cent. of those in Havana; and I presume that very few become infected under natural surroundings from each case of yellow fever. And when we come to think of it, it is evidently the case. Say there are 1,000 mosquitoes in a house, which is probably a large average; a case of yellow fever occurs in this house. It is only infectious for three days. Of these thousand mosquitoes probably only 500 are females, and only the female bites. Of these 500 females only four per cent. on the average are *Stegomyia*. That would make 20 female *Stegomyia* in the whole building. I think it would be a large estimate to say that one-fifth of the mosquitoes in a building of 25 or 30 rooms would bite each individual in the course of three days. This would give us four infected mosquitoes. In the natural course of events probably only two of these four would survive for two weeks, the time necessary to render her capable of transmitting the disease. The mosquito stays pretty close, and if the case is reported pretty promptly and screened, every probability is that the two mosquitoes would be in the screened area, and if not, the chances are that they would be somewhere in the house, or if they have escaped from the house, in some one of the adjacent houses.

So, apparently, our measures, in the course of a few months, killed every one of the infected mosquitoes. And likewise with the general work of mosquito killing. In a large majority of cases in a city, the mosquitoes in an individual house are bred on the premises of that house. Nine times out of 10, it is some old tomato can, or empty barrel, or something overlooked about the house that causes mosquitoes to be bad there. At any rate, this is the case in Havana. Generally you will find mosquitoes bad in one house, and two or three doors off, none; and our measures for destroying the fresh water breeding places in the city had in May, 1902, at the time of the termination of the military occupation, eradicated the mosquito from most parts of Havana. An inspection made in January, 1901, just before the general mosquito work, showed 26,000 breeding places for larvæ within the city limits. An inspection made in January, 1902, showed less than 300 in the same area. This is a fair measure of the decrease of the mosquito in the city generally. But if the measures of punishing people for breeding mosquitoes on their premises are not enforced, one rain will suffice to supply breeding places, and in two weeks there will be as many larvæ as ever about the city.

The attempt to do away with mosquitoes in the suburbs seemed equally hopeless, but the results were very satisfactory. Persistent ditching and draining in every direction accomplished a great deal. It is surprising to see how little ditching will make a muddy field dry. The *Anopheles* is a mosquito breeding principally in the suburbs, and the decrease in malaria will be a fair measure of the decrease of the mosquitoes in the suburbs. In 1900, the year previous to mosquito work, there were 344 deaths in Havana from malarial fever; for 1901, the first year of the mosquito work, there were 151 deaths; for the first nine months in 1902, there were 68 deaths, and this rate if maintained for the year will give 90 deaths for 1902. It seems to me that our work in Havana demonstrates the discovery that the *Stegomyia* mosquito is the intermediary host of yellow fever, and the only way of transmitting it, and it has solved the problem for the future of the control of yellow fever. And not only that; it shows that it is in the bounds of practicability to extinguish yellow fever entirely from all parts of the world. It seems to me now evident that if Havana can be kept free from yellow fever, say, for 20 years, the disease will have disappeared from North America, because, as I have shown above, an endemic focus, even if left to natural causes, will disappear of itself,

and, in the course of time, there will be left no point of infection for North America. It is possible, of course, to become infected from Rio Janeiro, but with a good quarantine system, this is not probable. And, of course, with a focus like Vera Cruz, in which the epidemic lasts for many years, it is possible for the disease to be kept up by its continuance in the smaller communities, in Yucatan and Mexico during the intervals between epidemics in Vera Cruz. But it is not probable. I mean to say that a number of epidemic foci within infecting distance of each other can have the same effect in keeping up the disease as an endemic focus.

Havana has been the great source of infection for all the shores of the Gulf of Mexico and the Caribbean Sea; and if it can be kept free, I believe that the other points will gradually free themselves.

And if, in the course of time, the same measures are adopted at Rio, the same results would follow. And with Rio and Havana gone as foci of infection, I think that yellow fever would gradually become a disease of the past, the first disease to become extinct, of which man has any history. And the parasite of yellow fever, like the dodo and buffalo, will disappear from his earthly haunts, and be only known historically from the fearful mortality he has caused man.

TABES DORSALIS: A STUDY OF 140 CASES OF LOCOMOTOR ATAXIA.*

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PART I: HISTORY AND ETIOLOGY.

History.—The story of the recognition and interpretation of the disease now universally known as "tabes" and "locomotor ataxia" is not without interest to every physician. In no more striking way can the great strides made by clinical medicine in the past half century be shown than by recounting this story.

Tabes is the commonest organic disease of the central nervous system. It is a disease whose clinical accompaniments are so striking that often it can be diagnosticated by the layman, and to recognize the average case the general practitioner requires but little experience in the diagnosis of nervous disease. In view of this, it is surprising that a description of the disease was not incorporated into medical writings until the beginning of the second half of the nineteenth century. Writers of different nationalities claim for one of their countrymen, the credit of its recognition. Their claims are often based upon emotional rather than intellectual evidence. English writers maintain that Todd discovered the disease in the forties, and published an exact account of it in 1847. French writers aver that Duchenne deserves the honor of having first depicted it understandingly. The Germans state that it is incontestible that the disease was first recognized in their own country by Romberg. There is a measure of truth in all of these claims, but the facts gathered from the writings of the above-mentioned investigators, and their contemporaries, are that in 1840 there was read before the Medico-Chirurgical Society of London,[1] a paper by Edward Stanley in which the disease now known as tabes was first described. Although he did not give the disease a special name he diagnosticated it as an affection of the spinal cord and prophesied that when the case came to autopsy certain lesions of the posterior part of the cord would be found. He, like Todd, a few years later seemed to have no interest in the discovery of a new disease, and apparently he was not aware that he had encountered one. At that time discussion of the origin and function of the posterior roots and posterior columns was very keen. It was to substantiate his views of these that Todd who, Gowers maintains, was the first to describe the disease in England, utilized his cases, which were undoubtedly genuine cases of tabes dorsalis. Todd says,[2] "In many cases in which the principal symptom has been a gradual increase of difficulty in walking, the posterior columns have been the seat of disease. Two kinds of paralysis may be noticed in the extremities, the one consisting simply in the impairment or loss of voluntary motion, the other distinguished by a diminution or total loss of the power of coordinating movements. In the latter form, while considerable voluntary power remains, the patient finds great difficulty in walking and his gait is so tottering and uncertain that his center of gravity is easily displaced. These cases are generally of the most chronic kind. They are dependent upon disease of the posterior columns. Sensation is affected only when the morbid changes extend to and involve the posterior roots of the spinal nerves." This, it will be seen, is a fair, superficial description of tabes. Todd distinguished admirably between paralysis and ataxia, but instead of dwelling upon the disease as a clinical entity, as did Romberg, and Duchenne, particularly the latter, he utilized the cases to substantiate the statement that neither anatomy, pathological observation, nor experiment lend sufficient countenance to the doctrine of the identity, of the function of the posterior roots and posterior columns to justify us in concluding that these columns are the ordinary channels for the transmission of the sensitive impressions made upon the trunk and the extremities. Todd's theory was, "that the posterior columns propagate the influence of that part of the encephalon which combines with the nerves of volition to regulate the local motive powers, and serve as commissures in harmonizing the actions of the several segments of the cord."

* This is the first of a series of articles on Locomotor Ataxia to be contributed by Professor Collins during the winter

† I am indebted to Dr. W. H. Dougherty, of Yonkers, an assistant in my Clinic, for aid in the compilation of these statistics.

His contributions do not seem to have been known in France and in Germany.

The part that France had in the recognition of the disease was an important one. In 1845 Bouillaud, of Paris, made an attempt to differentiate the motor infirmities of locomotor ataxia from the paraplegias of spinal origin and was the first to use the term "ataxia" with its present-day application, but he was unsuccessful in associating its occurrence with any given disease. Cruveilheir, in his studies of paraplegia in the "Anatomie Pathologique," 1835 to 1842, described a typical case of tabes. On autopsy there was found degeneration of the posterior columns of the spinal cord, complete in the dorsal and lumbar regions, but limited in the cervical region to the area bordering on the median fissure. As early as 1828, Hutin had demonstrated before the Société Anatomique, a spinal cord with the typical naked eye lesions of locomotor ataxia. It was not, however, until 1858-'59, when a remarkable series of papers on De l'Ataxie Locomotrice Progressive appeared from the pen of Duchenne of Boulogne, one of France's immortal clinicians, that the disease was fully depicted from the clinical standpoint. Duchenne's attention was apparently attracted to the disease as early as 1852, in the course of an investigation on the force of muscular movements in health and in disease. In 1857 he made his first communication on the subject and followed it up with the articles already mentioned. Duchenne said that after he had formed a conception of the disease as a clinical entity, he encountered it so frequently that soon he had 20 cases under observation. In his visits to the Parisian Hospitals he pointed out several cases as examples of this disease and differentiated them from the paraplegias with which they had been classed. Like much of the work of this clinical genius, his contribution to the recognition of the disease was given wide dissemination by Trousseau in his clinical lectures.

In Germany the first contribution of any importance to the disease which we know as "tabes" was contained apparently in an essay by Horn, in 1827. In this essay, entitled *De Tabe Dorsualis Præclusio*, the name tabes dorsalis was applied to a condition similar to that to which we now apply it, and not to the condition of sexual neurasthenia, or hypochondriasis, to which the term was applied by early writers from the time of Hippocrates. In 1835-'36 Nasse[3] referred to several cases in which the posterior columns were affected and which were probably cases of tabes. In 1842, Jacoby of Berlin, published a report of several cases entitled *Exemplum Tabes Dorsualis*, and in 1844 Steinthal[4] reported the clinical history and postmortem findings of a case which was in every way typical. This was undoubtedly the first autopsy. It was not, however, until Romberg published the second edition of his *Lehrbuch* in 1851, that tabes received its first adequate description in Germany. Romberg's attention had been given to cases of this nature for some years before he described it and he was aware of the reports which have been mentioned. He says that he had recognized the sign now known by his name, viz., swaying on standing with the feet together, nearly 10 years before. He pointed out that patients with this disease experienced great difficulty in washing the face in the customary manner, and on walking in the dark. He described very accurately the impairment of the muscular sense, and the uro-genital symptoms of the disease. He failed, however, to recognize that the motor disturbance was incoordination, not paralysis. He also estimated the duration of the disease with much accuracy. Apparently he did not encounter what may be called the neuralgic type of tabes among his earlier cases for in his description insufficient emphasis is laid upon pain as a diagnostic symptom. Nor did he recognize that syphilis was an etiological factor. He advocated the view that exposure to cold and wet was one of the important causative agencies. Since his time all writers have gone on enumerating this as one of the causes of tabes without adequate reason. I hope to show later that his description of the pathological changes, so far as can be made out with the naked eye, is tolerably correct.

From the descriptions of Todd in England, Romberg in Germany, and Duchenne in France, dates the beginning of general knowledge or recognition of the disease tabes or locomotor ataxia.

Duchenne's description of the disease is undoubtedly the most finished, and his understanding of it the most comprehensive. Although he wrote after the two first-mentioned it is said, but without show of proof, that he did not have access to, or knowledge of the writings of Stanley, Todd and Romberg when he published his first paper. Credit for applying the word tabes or tabes dorsalis, the name that is now universally given to the disease is due to Romberg. He rescued it from the unjustifiable usage of the ancients, for instance Hippocrates, who says that tabes dorsalis is the result of a wasting of the marrow of the backbone in an unnatural way. Hippocrates' delineation is typical of the disease which we now call sexual neurasthenia. In England, the name "Tabes Dorsalis" came into widespread use in the eighteenth century. In 1748 Lewis published a pamphlet entitled *Practical Essay Upon the Tabes Darsalis;* in 1780 J. E. Smyth published a brochure on the same subject, which had a very considerable popularity, insomuch as it reached its twenty-sixth edition. In 1800 H. St. John Neale, a London practitioner of excellent professional appointments, wrote a large book on tabes dorsalis of Hippocrates and dedicated it to Thomas Young the Surgeon-General of the English army. In all of these works, the expression "tabes dorsalis" was used in the same sense to indicate the wasting of the back muscles, supposed to be due to sexual excesses. This idea of the wasting of the muscles of the back, and of the

spinal marrow incident to such habits, was very popular with physicians in the eighteenth century. Boerhaave, the greatest physician that Belgium has produced, was a firm believer in it, and Tulpius, the physician Burgomaster of Amsterdam, whom Rembrandt has immortalized, contributed to the literature on this subject. It needed some courage on the part of Romberg to kidnap a name so widely used in both an etiological and a clinical sense.

Knowledge of the disease increased steadily after the work of the pioneers. In France Topinard summarized the information upon the subject in 1864 in a prize essay entitled *De l'Ataxie Locomotrice.* A year earlier Eiseman had published an article on the subject entitled *Die Bewegungsataxie* and in the same year Friederich began his contributions to the subject in *Virchow's Archives.* In England Gull, in 1859 differentiated the disease from the paraplegias and gave a lucid clinical description of it.

Important contributions to the clinical knowledge of tabes after this were made by Westphal, Erb, Argyll-Robertson, Delamarre, Charcot, Duplay, Morat, Mitchell, Biernacki, Hitzig, and many others.

In 1875 Westphal first pointed out that the knee-jerks are lost in tabes, and two years later in a second contribution he showed the value of this symptom in the early diagnosis of the disease. The truth of this received prompt corroboration from his countrymen, but particularly from Erb and from neurologists the world over. In 1869 Argyll-Robertson described the pupillary state in tabes, loss of reflex activity of the pupil on exposure to light, which is now universally known by his name, and which was soon recognized to be one of the most important and constant physical accompaniments of the disease. French investigators were concerned particularly with the attacks known as crises and with the trophic manifestations of tabes. Delamarre gave an excellent description of attacks of pain on vomiting occurring with tabes, but Charcot gave the first adequate description and the name "gastric crises" to these attacks in his lectures on diseases of the nervous system. Fèrèol described laryngeal crises in 1868, Raymond and Lereboullet described nephralgic crises in 1876. Since then "crises" (*i.e.*, sudden severe disturbances of function) of almost every visceral organ have been described, the last, being "heart crises" (Bloch). The trophic disturbances of the disease were studied with much care and in 1873, Weir Mitchell called attention to the liability of the bones to fracture spontaneously. In 1873 Duplay and Morat described the perforating ulcers of tabes and pointed out their true significance, insisting that they were dependent upon nerve lesion. These ulcers had been described in France by Nelaton, Pean, Despres and others. Their interpretation from a pathological standpoint has been contributed to by many, but we are particularly indebted to Westphal, more than to any other writer of note, for calling intelligent attention to this association.

In the etiology of the disease, the most important contributions, by all means, have been made by Fournier and Erb. They established incontestibly the connection between syphilis and tabes. Fournier was by no means the first to note the possible or probable relationship, but he was the first to show that the vast majority of those who develop locomotor ataxia had had syphilis. Duchenne had spoken of the subject in 1859. Topinard, Vulpian, Fèrèol, Schultz and Carre had all noted that syphilis had preceded the occurrence of the disease. After Fournier's contribution, the subject was taken up by Gowers, Erb and Strümpell and many others. At the present time the opposition to this view has narrowed down practically to one clinic, that of Leyden, but in the beginning this teaching was opposed by Charcot, Westphal, Remak and Bernhardt. For many years Virchow opposed the syphilitic origin of tabes and shortly before his death he enumerated himself again with the opposition.

The morbid anatomy of the disease was developed particularly by Rokitansky and Turck, and by Lissauer in Germany, and by Bourdon and Luys,* and by Pierret working under the direction of Charcot and Vulpian in France and later by Déjerine. The many contributors to our knowledge of the widespread anatomical changes which go on in tabes, need not here be mentioned, as the majority of them will be spoken of later, especially when the morbid anatomy of the disease is under discussion.

Etiology (1) *Statistics.*—For a number of years I have been interested in the subject of tabes, principally in regard to its etiology and prognosis, and consequently I have been careful to get as full information as possible from the cases that I have studied. The 140 patients with tabes upon which this subject is based, were seen personally in dispensary, hospital and private practice. The 140 patients constituting this series were distributed as follows: Private patients, 52; Hospital patients, 47; Dispensary patients, 41. Thus the majority of them were seen either in hospital or private practice and opportunity was therefore given to study them with much care. Many of them have been under personal observation for upward of 10 years, so that something has been learned concerning the prognosis of the disease from this experience. If these cases are analyzed without prejudice and without preconceived notion as to the etiology of the disease, the following facts seem to be established.

Sex.—Of the 140 patients there were 124 men (83 per cent.) and 16 women (17 per cent.) a ratio of very nearly 7.5 to one.

Station.—Of the men 78 were married, 12 were widowers, and 34 single. Of the women six were married, four were widows and six were single.

Age.—The average age at which the symp-

toms first appeared was 38½ years. Twenty-two cases occurred between twenty and thirty years, 48 between thirty and forty years, 45 between forty and fifty years, 14 between fifty and sixty years, and one each at eighteen and sixty years. Fifty per cent. of the cases among the women occurred between the ages of twenty and thirty while in the same decade there were only 11 per cent. of the men.

The youngest patient, a Russian boy of eighteen years, gave a neuropathic family history and a personal one of promiscuous sexual intercourse from earliest youth. Although he denied syphilis, it is most probable that he had had it.

Races.—Among my 140 cases there were four negroes, two males (dispensary patients) and two females (hospital patients), and one Chinaman. Both of the negroes and one negress had had syphilis. The fourth colored patient could not be made to comprehend what syphilis was, and therefore no intelligent information could be got from her.

Nationality.—Of the 140 patients there were 59 native born, 22 Germans, 15 Irish, nine Russians, eight English, seven Italians, six Austrians, two each from Scotland and France, and one each from Canada, Cuba and Sweden. The nationality of seven was not ascertained.

Occupation.—These were varied, those given most frequently were clerks 18, laborers 11, mechanics eight, drivers seven, merchants five, tailors five, policemen four, barbers four, physicians three, clergymen two, lawyers two, artists two, actors two, brokers three, bakers two, waiters two, commercial travelers two, railway engineer one, gamblers four, seamstresses and cooks two, railway conductor one, nurse one, housewives five, actresses two, teacher one, valet one, retired two.

Syphilis.—Eight-five of the 124 male patients or 68 per cent. gave a definite history of syphilis. Of these 46 recalled the occurrence of secondary manifestations and gave a description of them.

There were 19 other patients in whom a previous luetic infection seemed probable; six of these gave a history of "soft chancre," four admitted having had at a remote period a pimple or a slight sore on the glans penis. The remaining nine had given at some time evidence of syphilis in having had a suggestive eruption of skin or mucous membrane, symmetrical scars upon the legs, or an alopecia of rapid development. In addition, facts elicited relative to their habits and mode of living fully justifies placing them in the category of "suspected syphilitic." Admitting the latter 19 to be luetic the percentage of syphilitic patients in the series is 83.

Gonorrhea occurred in 13 patients who had had syphilis and in 12 who had never been thus affected, therefore 117 of the 124 or 94 per cent. gave very suggestive evidence of, or admitted having had some form of venereal disease.

Of the 85 male patients who gave a history of syphilis, the specific infection was stated to be slight in 80. In five only was there recollection of attending or sequential symptoms which would entitle it to be called severe. When there was cutaneous or mucous membrane ulceration, iritis, keratitis, protracted erythema, fever, profound disturbance of nutrition or other symptoms of comparable severity the disease was considered severe. In many of the cases in which the history of syphilitic infection was made out, the patient maintained that the initial lesion was very trifling, a pimple or slight abrasion and the rash which was scarcely noticeable lasted only a few days or "a week."

It seems to be well established that the intensity of syphilitic infection as manifest by local lesions and so-called secondary symptoms, stand in no relationship whatsoever to the development of tabes, either in regard to the time at which it develops or the severity of its symptoms.

In two instances the chancre was extra-genital; on a clergyman's lip and on a physician's finger. (The ratio of genital to extra-genital chancres is about 15 to 1.)

Syphilis—Females.—Analysis of the 15 female patients on this series in reference to the question of previous syphilitic infection is most instructive.

Case 1.—Mrs. X., denies syphilis. She is married to a syphilitic man. She has had one miscarriage and one living child, and her conduct has been such that she might legitimately have become infected. She began sexual intercourse when a child, and has had a wide experience.

Case 2.—Miss X., had been ill for a number of years with typical tabes, but the diagnosis had not been made. The patient has no idea what syphilis means. Her conduct had always been irreproachable so far as is known. She had been engaged for many years to a man who was very dissolute and who had to be discarded because of his habits. If he suffered from syphilis she was entitled to it. She gave a history of rash and sore throat.

Case 3.—Miss X., seen on behalf of a corporation against which the patient had brought action, claiming that her disease had resulted from an injury from one of the defendant's cars. Patient was unmarried and she could not be interrogated in regard to syphilis. She had received a great deal of gynecological treatment, local application, etc., from the physician with whom she was seen.

Case 4.—Miss X., case of tabes in which the initial symptoms were optic atrophy. Her life and experience easily entitled her to syphilitic infection, although no history of it could be obtained.

Case 5.—Mrs. X., her husband was distinctly syphilitic. She had had two miscarriages.

Case 6.—Mrs. X., no distinct history of syphilis but she had had one miscarriage and no children.

Case 7.—Mrs. X., resented questioning on syphilitic infection and left the Clinic with the

conviction that her feelings had been outraged. Complete optic atrophy was an early symptom.

Case 8.—Mrs. X., married when very young to a sailor. She had had two miscarriages and lived a dissolute life. Body tatooed.

Case 9.—Mrs. X., actress; no specific history and nothing bearing upon it.

Case 10.—Mrs. X., actress, married three times. Second husband syphilitic. Had a number of miscarriages. Began sexual intercourse when about thirteen years old. Experience fully entitles her to syphilitic infection.

Case 11.—Miss X., denies all knowledge of syphilitic disease. She has symmetrical scars which are almost pathognomonic of syphilis. Her experience entitles her to syphilitic infection.

Case 12.—Mrs. X., syphilitic infection when nineteen years old. History of secondaries and miscarriages.

Case 13.—Miss X., there had been no suspicion on the part of patient or physician that tabes existed. The physician was positive that it was needless to interrogate her concerning syphilitic infection. She reluctantly admitted however relations entitling her to infection, and gave as clear a history of secondary infection as could possibly be given.

Case 14.—Mrs. X., no history of syphilis and nothing in her history that could be construed as syphilitic.

Case 15.—Mrs. X., two years after marriage she had diplopia which lasted for a year and a half. Has been sterile.

Case 16.—Miss X., clear history of syphilis. Not treated. First symptoms six years after infection.

Thus out of 16 female patients with tabes 11 had positively been infected with syphilis, *i.e.*, 70 per cent. who had positively had syphilis. In one of the patients who did not give a history of syphilis optic atrophy of a pronounced degree was an early symptom. It is well known that the cases of tabes with early optic atrophy are almost invariably in patients who give history of syphilis. In another patient, there was a history of one pregnancy which terminated at the fifth month and then sterility.

Female tabic patients seen in private and in hospital practice were syphilitic. Those seen in dispensary practice denied syphilis. This, it seems to me, is very instructive. In many of the cases seen in private practice or in hospital, I did not discover that they were syphilitic for perhaps a year after I saw them. The cases seen in the dispensary cannot be followed sufficiently long to get positive information on this point.

Habits.—Of the 140 patients, 42 were addicted to intemperate use of alcoholic drinks. Fifteen of these were syphilitic. Eight men and three women had been given to intemperate sexual indulgence, and of these seven were syphilitic. Two were addicted to the very excessive use of tobacco, and of these one was syphilitic. Sixteen of the 140, 15 men and one woman, were intemperate in the use of alcohol and tobacco, and sexually. Of these 12 acknowledged having had syphilis.

Trauma.—Bodily injury of some kind was claimed to be an etiological factor in five instances. In two cases the patients claimed that the tabic symptoms appeared first shortly after the injury. One was a woman of thirty years who had been thrown to the floor of a street car, by the bunking of one car into another. After the accident she was hysterical and the following day complained of pain in the back and shoulders and examination showed trivial bruises. Within a few weeks, she cannot state more accurately, she became ataxic. When examined five months later, she presented most of the classical symptoms of tabes. She denied any previous disease save leucorrhea, for which she had received a great deal of treatment by way of local applications to the cervix and uterus. Patient was unmarried and it was impossible to question her regarding a possible specific history.

Another patient, a clergyman, attributed his illness to a fall from a street car for which he held the railway company responsible. When he came under observation 14 months after the injury and the signs of tabes were then unequivocal. In this case there was a history of syphilis. The three other cases were as follows: (1) Male, struck on the head and back three years before, had had syphilis. (2) Male, five years previously had some ribs and an arm fractured, history not very complete. (3) Male (history incomplete), the patient suffered fracture of the pelvis a few years prior to onset of tabes.

Mental and Physical Hard Work, Worry—The Strenuous Life.—Six of the series gave a history of physical hard work, but in only one did this element occur alone. Three were syphilitic and two were addicted to alcoholic and sexual excesses. In only one instance was there a history of exhausting mental work in connection with the conduct of a large business. Nor is worry or other distress of mind mentioned except in two instances. In fact the majority of the patients with tabes seen in private practice seemed to have borne the burdens of life with as much equanimity as the average individual.

Leg Weariness.—As all classes, social and professional, are represented in this series, it follows that there were some whose occupation of necessity was conducive to leg weariness, but nothing is said in the histories in regard to this, aside from mere mention of the occupation. The peddlers, policemen, barbers, "bookmakers" and waiters who represent the leg-weary class of this report were all with one exception syphilitic.

Previous Diseases.—Gonorrhea, 25 cases, 13 of whom were syphilitic; rheumatism, six cases, three of whom were syphilitic; typhoid, six cases, three of whom were syphilitic; malaria, three cases, two of whom were syphilitic; influenza, three cases, two of whom were syphilitic; variola, three cases, two of whom were syphilitic; varioloid, one case, syphilitic; pneumonia, five

cases, four of whom were syphilitic; pleurisy, one case, syphilitic; spinal meningitis, one case, also syphilitic; peritonitis, one case, not syphilitic; "brain fever," one case, not syphilitic.

The case of brain fever, all the cases of variola, four of the six cases of typhoid, two of pneumonia antedate the onset of tabes by many years.

Gonorrhea occurred three times, pneumonia twice, rheumatism, malaria and spinal meningitis once between the luetic infection and the beginning of tabes. In one case the tabic symptoms developed in a woman within a year after an attack of peritonitis. This patient denied syphilis. In two of the three patients who had had influenza the symptoms of tabes manifested themselves almost immediately thereafter; both of these patients, however, gave a previous luetic history.

Effect of Antisyphilitic Treatment in Delaying and Preventing Tabes.—Opponents to the syphilitic origin of tabes maintain that if tabes is of syphilitic origin it should not occur so frequently in those who have had adequate and effectual treatment as in those who have not had such treatment. If their premises are sound the logic is unassailable.

The important facts relative to the relationship of syphilis and the effect that treatment had in preventing the development of tabes is shown in the following table:

Number of private patients affected with syphilis, ... 45.
Average age when tabes developed, ... 40.5
Average age when infected, ... 26
Average duration of treatment, ... 22 months.
Average time between infection and first symptom of tabes, ... 11 years.

Number of hospital patients affected with syphilis, ... 35
Average age when tabes developed, 39 years.
Average age when infected, ... 24 years.
Average period between syphilis and tabes, ... 12 years.
Duration of treatment, ... 5 months.

Number of dispensary patients with history of syphilis, ... 16
Average age at which tabes came on, 36 years.
Average time between syphilis and tabes, ... 11 years.
Average age when infected, ... 24 years.
Average duration of treatment, ... 3 months.

If these figures can be relied upon they seem to show (1) that anti-syphilitic treatment did not prevent the development of tabes and (2) that such treatment did not delay the development of the disease. The cases in which such treatment was carried out most carefully developed tabes as early or earlier than those in which the treatment had been desultory and incomplete. This is practically the conclusion which I reached six years ago. This does not by any means speak against the belief that tabes is genetically related to syphilis.

Commentary.—The relative frequency of tabes in male and female is very differently estimated by different writers. It is generally believed that tabes occurs very rarely in women. The following review of recent articles shows the sex frequency as given by authors of different nationalities.

Gowers (England), 10 to one; Bramwell (Scotland), 10 to one; Fournier (syphilologist, France), 26 to one. Déjerine and Thomas, Grasset and others (France) say that a very small proportion of all cases occur in women; Motschutkowski (Russia), 13 to one; Erb (German), 19.5 to one; Koschewioff (Russia), 11 to one. Bonar (Starr's cases), 6.5 to one. Thomas (American), seven to one. From Berlin comes a very different relativity which is quite startling. Hoffman analysing Westphal's cases gives a proportion of 2.7 to one. Kuhn (Jolly's Clinic), 1.6 to one. Recently Mendel has analyzed 1,013 cases of tabes of which 725 were men and 288 women, *i.e.*, a proportion of 2.7 to one. These were dispensary cases. In private practice the proportion was very different, there he saw only one woman to every 25 men with tabes. He remarks therefore that the frequency of tabes in women has the same relationship as general paresis, *i.e.*, about three to one among the lower classes, while in the higher classes the proportion is eight to ten times greater. Mendel analyzes his statistics of female tabics with particular reference to the question of syphilis bearing in mind the relationship that sterility has to syphilis, and the fact that frequently it is the only indication of syphilis, and gives his attention particularly to a determination of that. Of his 288 cases, 252 were married, and among these there were 83 instances of childless marriage; *i.e.*, about one third were sterile. Out of 55 of these 83 cases conception had never occurred. In the remaining number a few had conceived, but they aborted in the early months of pregnancy. It is the general belief that about 10 per cent. represents the proportion of sterile marriages among the lower classes, so that these statistics of Mendel show that sterility in tabes must have some other explanation.[1] He infers that it bespeaks antecedent syphilitic infection.

My own statistics show that the ratio of the disease in men and in women is 7.5 to one: practically the same proportion as that given by other recent American writers (Thomas, Bonar, *et al.*). This proportion is so at variance with the statistics of Berlin writers above quoted that it is very difficult to suggest an explanation. This much can be said without fear of contradiction. (1) Although tabes is, in this country, still an uncommon disease in women, it is becoming more frequent; (2) as women force their way into the professional, political and social arenas formerly usurped by men, so in proportion do they fall victims to the diseases associated with civilization. (The "strenuous life" of Americans.) (3) The same factors are responsible for the disease in women as in men.

In passing it may be said that one of the arguments used by those who have opposed the view that syphilis plays the most important part in the etiology of tabes, is that tabes occurs so rarely among women. This contention must soon be discarded. It is no longer applicable to the population of Berlin.

My statistics seem to show that tabes occurs oftener in married than in single men and women (72 per cent. married or widowed). This, I take it, does not mean (as Bramwell seems to think) that married people are more liable to tabes than single people. It merely shows that at the present stage of social evolution marriage is not only regarded as a sacrament, but also the "correct thing" to which the average individual conforms.

There is nothing noteworthy about the age at which the disease developed in my cases. Full maturity is the period when tabes begins, thirty-five to forty-five in men and thirty to forty in women. It may occur at any age. The oldest case in my series was sixty. Bramwell mentions a case in which the disease began at seventy-three. Only one of my cases can be considered an example of juvenile tabes. There was no case of infantile tabes. Many writers do not distinguish closely between infantile and juvenile tabes, but it is quite essential to do so for the light it may possibly throw upon the etiology.

Infantile and Juvenile Tabes.—Tabes is a very uncommon disease in children. That it occurs however, is abundantly verified by cases reported during the last few years. It is certain that some of the early reported cases of locomotor ataxia in children, such as those of Kellogg,[8] and Hollis[9] are cases of hereditary ataxia; the first mentioned, of spinal origin, the second of cerebellar. Most of the 30 cases of infantile cases collected by Hildebrandt, in an Inaugural Dissertation in 1892, are likewise cases of Friedreich's disease. There can be no doubt also, I think, that the case of Leubuscher,[10] is one of Friedreich's disease. The same may be said of a case reported by Freyer, while that reported by Jakubowitsch is in all probability one of pseudo-tabes of neuritic origin. Strümpell[11] has reported the case of a thirteen-year-old girl, in which tabes and general paresis, an expression of the same lesion in different parts of the body coexisted. Remak has, however, reported three cases,[12] in children twelve, fourteen and sixteen years of age, that are genuine cases of tabes. Other cases are those of Mendel,[13] beginning in the eleventh year with atrophy of the optic nerve, the clinical picture was not clearly that of tabes, and Bloch,[14] a child thirteen years old. (Although this was the most legitimate diagnosis to make.) Bloch[15] reported a second case of infantile tabes in a child fourteen years old. The symptoms were entirely typical. This patient had attacks of palpitation which the author thinks may be cardiac crises. V. Dydynski[16] publishes the case of an eight-year-old boy in which the symptoms began when he was five years of age with disturbance of function of the bladder, and later typical symptoms of tabes, and Brasch,[17] a girl of fifteen, whose father had had syphilis and died of tabes. The child showed unmistakable signs of syphilis when thirteen days old. Kron has recorded a case,[18] in which the child of a father with general paresis was infected with syphilis by a nurse when eight months old. At the age of thirteen years symptoms of tabes began. Berbez,[19] reports two cases beginning at sixteen and seventeen years of age respectively. Gumpertz[20] has reported the case of a nine-year-old child. He is of the opinion that his case bespoke genuine syphilitic disease of the cord and not a metasyphilitic spinal disease such as tabes. But knowing his views on the relation of syphilis to tabes, the suspicion enters my mind that he is impelled to this statement that he may show that syphilis is not the important factor in the etiology of tabes which many think.

V. Halban[21] reports four cases of juvenile tabes in patients from seventeen to twenty-four years of age.

Three cases of infantile tabes due to congenital syphilis have recently been reported by James.[22] Although the father denied syphilis he had been under treatment in a hospital when nineteen years old for a urethral discharge and suppurating bubo which had left a scar. There were manifestations of congenital syphilis in some of the children who did not develop tabes. Case I, a girl of twenty was quite typical of tabes while in Cases III and V, a girl of fifteen and a girl of eight, the diagnosis of tabes was the most probable. Other cases have been reported by Gowers[23] and Mott.[24] There are then altogether upward of a dozen cases in the literature. This shows how very rare tabes infantalis really is.

What has been said under the captions Race and Nationality need not here be repeated. I think it has been sufficiently proven that these do not exempt from tabes. Physicians in our new territorial possessions, particularly the Philippines, where syphilis is very common, will, I hope, soon apprise us of the frequency with which parasyphilitic diseases of the nervous system are met there.

One of the arguments used against the important rôle which syphilis plays in the causation of tabes is that tabes is a very rare disease among races (Negroes, Chinese, etc.) in which syphilis is very common. But it will no doubt be found that in proportion, as these races follow in the foot-steps of the twentieth century Caucasian, so in proportion will they develop tabes.

Among Thomas's 111 cases of tabes there were five negroes. McConnel of Philadelphia has published five cases of locomotor ataxia, all syphilitics. Holzinger of Abyssinia, says that in 107 patients with nervous diseases there were six of tabes. This is about four times as many as we see in New York in the same number of cases of nervous diseases, so it seems legitimate to infer that the Abyssinians are having one of the customary sequelæ of what they call "our disease"

(syphilis). The author says that they do not have neurasthenia in Abyssinia but it is probable that they will not be immune very long.

It is noteworthy also in my case that there was one Chinaman (hospital patient). Of the 124 males 43 were Jews and of the 16 females two were Jewesses. Therefore, so far as race is considered, even my small experience shows that it offers no immunity.

My statistics do not seem to show that there is anything to be learned from a consideration of the patient's occupation. It has been said that commercial travelers furnish proportionately a larger number of cases than other occupations, but my small statistics do not seem to corroborate this. The patients came from almost every profession and occupation, no one save that of "clerk" (used figuratively by the patient to describe any business which he did not own, or no business) seems to predominate.

Tabes and the Intemperate Use of Alcohol, Sexual Excesses and Exposure to Cold and Wet.—Just how much the intemperate use of alcohol and tobacco, and excessive indulgence in sexual excesses have to do with the causation of locomotor ataxia is not very much illumined by these statistics. About one-third of the 140 patients used spirits excessively. Whether this is a larger percentage of intemperance than is normal to the grade of society from which these patients came I am unable to say. My impression, however, is that it is. It is a much larger percentage than is given by most authors. For instance, in 155 cases reported by Bramwell there was a history of marked alcoholic excess in but 10. He states, however, that the actual number was probably larger. In view of what we know of the pernicious effect which alcohol excites upon the neuron, particularly the peripheral sensory neuron, it may readily be seen that the intemperate use of spirits may be a predisposing cause of considerable importance in this disease.

Some writers (Motschutkowski, Hermanides, *et al*), claim that sexual excesses play a very important rôle in the causation of tabes, and this view is very generally accepted by the laity. Neither from my own experience, nor from the published experience of others do I find any justification for such claims. I am convinced that the proportion of sexual excess is no greater in persons who afterward develop tabes than in those who do not have it, or any other nervous disease.

So far as my observations go, exposure to cold and wet have very little bearing on the causation of locomotor ataxia. Still it is accepted by Erb and other authorities as having a causal relationship in a small percentage of cases. I think, however, the number of cases in which it is posited as an etiological factor will grow less as the subject is carefully studied. It was Romberg's idea originally. He saw many patients with tabes from the German army. It is very natural that such cases should give a history of exposure, particularly in time of war, and that symptoms which are often looked upon as rheumatic, not only by the laity but by the profession, should be attributed to such exposure.

Tabes and Trauma.—In every collection of statistics there are some cases that are attributed by the patient to injury. The proportion of such cases is probably about one to 50. Trauma is put down as one of the causes of tabes in most of the books. It often becomes a matter of much importance from a medico-legal standpoint to determine if injury is the real cause of the disease.

Trauma as a cause of tabes, seems to have been first suggested by Leyden in 1863, and three years later by Lockhart Clarke. But it was not until the appearance of Schulze's monograph on the Etiology of Tabes in 1867 that the subject began to attract attention. He reported four cases, but none of them can be considered to show indubitably that the disease was caused by injury. It is universally admitted that syphilis is a cause of tabes. Therefore, a case of tabes, occurring in a syphilitic person after trauma, is due to syphilis and not to injury, although the injury may be an exciting cause. In attempting to estimate the importance of trauma as an etiological factor in tabes, we must exclude not only patients giving a syphilitic history, but those in which the symptoms of the disease develop (1) so soon and (2) so remotely after the injury that the lesions constituting the disease are not likely to be caused by it. Finally, the injury must be of such severity as to entitle it to be called an adequate cause of disease. Because a man develops locomotor ataxia, after a simple experience of daily life, such as a fall, or a blow on one part or another of the body, neither of considerable severity, there is no justification in concluding that such an experience is the cause of a disease so extensive, so chronic, so colossal, as tabes. When the literature of traumatic tabes is reviewed one sees that such trivial occurrences have more than once been considered etiological factors in tabes. For instance, Popinard relates a case which he attributes to strain of the back; Edwards one coming on seven years after an operation on a tooth; Leclorche and Talamon one developing nine to ten months after an ulceration following the excision of a corn. The utter absurdity of attributing such a disease as locomotor ataxia to experiences of this kind is only equaled by that which attributes epilepsy to strain of the eye muscles.

It is impossible even to refer specifically to all of the cases of so-called traumatic tabes in the literature. The vast majority of them on being subjected to critical examination have to be taken out of this category. This is true, for the case of Lockhart Clarke, published in 1876, and for all the cases in Petit's monograph on the subject, published in 1879. Although Petit is very guarded in his statements regarding the importance of trauma as a cause of tabes, his monograph is frequently quoted in support of the view that trauma is a cause of the disease. In 1890, Klemperer took up the subject and published a

monograph which contained reference to all the cases of so-called traumatic tabes up to that date. Of all the cases reported by Klemperer there are four, possibly six, in which trauma may have had something to do with causing the disease. In 1895 Morton Prince[25] gave a brief review of the subject, in which he pointed out that not more than 12 of all the cases reported might reasonably be regarded as the result of traumatism. In not one of them did an examination at the time of the accident demonstrate that the patients were free from spinal disease at that time, and in three only is there any statement of previous syphilitic infection.

In 1897 Mendel[26] made an analysis of nine cases of tabes attributed to injury, and concluded that in two of this number the injury might possibly have had something to do with causing the disease. I think it is very doubtful. In the first place one of the patients, in which the symptoms of tabes came on three years after the amputation of the thigh, had syphilis six years before. In the second case, a man forty-two years old, who fell 27 feet and suffered from a contusion of the spine and of the head had been a very hard drinker for many years. Mendel admits that this may have had quite as much to do with producing tabes as the injury. Hitzig[27] made an extensive investigation of the subject in 1894 and recorded two cases. The first, a man forty-seven years old, fell and received a fracture of the left radius, and a dislocation of the left ankle-joint. Immediately thereafter he suffered with pain in the left leg and head, and later a feeling as if the leg had gone to sleep. In the right leg there was no pain or parasthesia. A few weeks after the accident he had difficulty on walking in the dark; soon afterward, lancinating pains, and six months after the injury incontinence of urine. Examination a year later showed a typical case of tabes. To my mind it is impossible to conceive that an accident such as this could cause the slow degeneration in the posterior roots and columns upon which tabes is dependent. It seems to me that the rapidity with which the symptom developed, and their existence almost immediately after the injury indicate that the disease was present before the man received the injury. The second case was a locomotive engineer, fifty-five years old, who denied syphilis. In 1884 he received an injury to the right knee. In 1892 he was in a railway accident, but was not injured, although he was severely frightened. A few days later, symptoms of traumatic neurasthenia developed, and in addition, heaviness of the legs, cold feet and parasthesia. Examination a year later showed the typical picture of tabes. Hitzig concludes that all cases of tabes must be looked upon as following in the wake of a previous infection, and that trauma, exposure to cold and other deleterious influences may be regarded only as exciting causes of a disease, which, if not already under way, is sure to develop later.

So many of the cases recently reported as traumatic tabes do not fulfil the requirements necessary for admission to such a category that it is convenient to mention them here together. For instance, the patient whose history is reported by Pineles (*Neurologisches Centralblatt*, 1896, p. 615) denied syphilis, but the denial goes for naught, in view of the fact that his wife had borne three dead children, that one child had had an eruption on the skin which disappeared under mercurial treatment and that the patient himself suffered from an enlargement of the liver, which improved under mercurial inunctions. The same may be said of a case reported by Trevelyan,[28] while the case reported by Adamkiewicz,[29] in which the tabes came on four years after the patient had been kicked by a horse and suffered a fracture of a dorsal vertebra, is taken entirely out of the category by the length of time which elapsed between the injury and the disease. In the case reported by Seaux,[30] the injuries which followed being thrown from a wagon and run over were of such a nature, viz.: paraplegia, incontinence, and sensory disturbances, as to bespeak a laceration of the cord substance. Just how the symptoms of tabes, which developed later, were secondary to this, the author does not make quite clear. The only justification that Lempke[31] has for considering the case of tabes which he reports due to injury, is that the patient fell into a cellar and got a severe shaking up. There is just as much reason for believing that the tabes existed before the fall as there is for believing that it existed afterward. As I said before, it is absurd to maintain that every experience which a man may have may produce tabes. If this patient had developed cirrhosis of the liver after such an accident, it is not likely that it would be described as traumatic. It is very difficult also, to understand how the injury in the case reported by Gaspardi,[32] viz., the stab of a dagger beneath the clavicle which severed the brachial plexus, produced tabes, unless it be that the writer is a believer in the view of Spillman and Parisot, who in 1888 published an article in which they attempted to show an etiological relationship between tabes and injuries that produce an irritation of the peripheral nerves. It may be said in passing that this view has few or no adherents. In 1898 Trömmer[33] reported three cases of what he considered to be traumatic tabes. The first patient, a man fifty-two years old, who denied syphilis, received an injury to the left foot while helping to fell a tree. Eight days later he complained of weakness and pain in the leg, and in a short time the typical picture of tabes developed. The patient's wife had general paresis. In a second case, a man fell from a wagon striking on his back, and in a third case, the patient received a stab wound in the arm. The author says that from a scientific standpoint, trauma cannot be looked upon as a certain cause of tabes, but that in practice it must be admitted that the clinical manifestations of tabes are sometimes first noticed after trauma, and this, I think, no one can deny.

Erb states that trauma plays a rôle in the

etiology of tabes in perhaps five per cent. of the cases, but he cites only one case in which the disease was probably due to injury. In all the others the influence of trauma seemed to be to hasten the onset and facilitate the development of the disease. Prince (loc. cit.) has reported a case in which it seemed fairly clear that the injury, a fall from a street car, was the cause of the disease, in which it was afterwards proven that the man was in the pre-ataxic stage of the disease when he received the injury. This by no means exhausts the list of published cases in which there seemed to be a causal relationship between injury and tabes, but it will suffice to show that in most of the cases, some other factor than the injury might be quite as legitimately considered to be the cause. I make no mention of cases such as that reported by Craig[34] because, in the first place, the disease if tabes was extremely atypical, and in the second place, the symptoms developed a long time after the injury.

In my own list of cases there are three which might be considered traumatic, but in one only is there any real ground for such classification. In that case I was not able to satisfy myself that the injury had anything more to do with the disease than that of hastening its development. It seemed to me that as there were no evidences of injury at the time of, or immediately following the onset save a few slight contusions which disappeared within a short time, and as the symptoms of tabes came on within a few weeks, that it was impossible to reconcile this with the ordinary clinical development and pathological anatomy of tabes. The patient, as has already been said, was reported to have been a strong healthy young woman. Yet it was admitted that she had been under gynecological treatment consisting of applications of medicinal substances to the cervix for a protracted time.

I have never met a case of tabes which I considered to be due to trauma alone. Nor am I at all convinced from an examination of the literature that such cases exist. There can be very little doubt that in certain instances bodily injury and mental perturbation act injuriously in hastening the development of the disease and increasing the rapidity with which it progresses, but that they are, in and of themselves, sufficient to produce the disease has, so far, not been satisfactorily proven.

The experience related by Brasch[35] is instructive in showing how trauma may bring to the front the phenomena of tabes, and how easy it is to mistake the discernible manifestations of the disease for the onset. Incidently it shows that we cannot scrutinize too closely those cases of tabes claimed to be of traumatic origin. A man, thirty-nine years old, who had had a chancre when thirty-five, which was not treated after the general manifestations of the infection had ceased, at thirty-eight suddenly developed squint. One year later he fell and injured the knee. Shortly afterward he complained of parasthesia in the leg, and later of retention of urine and difficulty in walking. The typical signs of tabes were soon elicitable. If the patient had denied a syphilitic history, such as in the following case, this might have been recorded as a case of traumatic tabes.

Müller[36] records the history of a patient who fell from a horse and was stepped upon, causing a fracture of the thigh. Within a year the patient had easily recognized tabes. Close inquiry into his personal history revealed the fact that 10 years before he had had a chancre which was not heeded in any way, and which had practically been forgotten.

Tabes and Heredity.—Heredity as a cause of locomotor ataxia is very differently estimated by different writers. A few claim that there is proof that the disease is directly hereditary, and they cite the cases hereinafter mentioned in which tabes occurs in parent and offspring, in support of their claim. We shall see, however, that a very different interpretation can be put upon them. Almost every writer on the etiology of tabes dwells upon the importance of the neuropathic constitution, which is almost invariably an inherited condition, as an important indirect factor in the development of the disease. Charcot and his disciples particularly are responsible for the propagation of this view. It has been difficult for them to furnish tangible proof of their contention in the shape of clinical histories which set forth that there existed nervous disease in the ancestry or the collateral family of the patient. If by neuropathic constitution one means that the sensory neurons are not endowed with sufficient vitality or vigor to carry them through seventy years of life, then the neuropathic constitution is an indirect cause of tabes, for it is probable that this inherent lack of vital resistance is a condition which, in the majority of instances, allows the noxious agencies developed by syphilis to be operative. But if neuropathic heredity is indicated by the existence of nervous disease in the immediate and collateral ancestry, and the neuropathic constitution is evidenced by the possession of somatic and psychical stigmata, then my statistics do not encourage me in the belief that such heredity has much to do with the development of the disease. In only 10 per cent. has diligent inquiry been awarded with a statement that some of the immediate family or ancestry had affections which entitled them to be classed as neuropathic. This conclusion is in accordance with the experiences of Möbius and of Gowers. The majority of authors, particularly the French and German, still emphasize the importance of heredity.

In 1886, Déjerine[37] said that no case of direct heredity of tabes was known. To-day there are a number of cases (7) on record, in some of which no history or indication of syphilis can be made out. Two by Berbez (loc. cit.), father and son. The latter syphilitic at twenty-five, tabic at twenty-eight; mother and son, the former possibly syphilitic, the latter tabic at twenty-three. Kalischer[38]; mother, fifty-one (developed tabes at

thirty), and son twenty-seven, when tabes developed. Goldflam[82]; father, sixty years old, and son thirty-seven, both previously syphilitic. Erb,[80] two cases; father, sixty-nine, syphilitic, son, twenty-three, syphilitic. Father died of tabes, son developed it, no history of syphilis, but he had enlargement of the cervical and epitrochlear glands.

In all of these cases the disease developed in the offspring after maturity, and in the majority of cases there was a history of syphilis. In the case reported by Dydynski (cited on p. 13) tabes developed when the child was five years old. The father had had syphilis when 20, the mother had had five abortions before this child was born. At the time the case was reported the father was developing tabes.

A syphilitic history was made out in all of these cases save Kalischer's, and the occurrence of tabes in parent and offspring may be said to bespeak almost unequivocally the previous existence of syphilis in the parent and its transmission to the offspring or the existence of acquired syphilis in the parent and offspring. There is no genuine case of infantile tabes on record in which syphilis did not exist. I see no reason why in Kalischer's patient, a young man of twenty-seven years, the tabes may not have been due to acquired syphilis. In the case of juvenile tabes in my statistics the patient denies syphilis, but as he was a Russian peasant and began indiscriminate sexual intercourse on his native heath when twelve years old, he is likely to have had syphilis, considering its dissemination in Russia.

These cases, in which tabes occurs in parent and child may be interpreted as examples of direct transmission of the disease, but I think there is little or no justification for such interpretation. It is much more legitimate to look upon tabes in the descendant as an indication of syphilis inherited from the parent, particularly so, as it is certain that tabes is caused by hereditary as well as acquired syphilis. In the vast majority of the cases of hereditary syphilis mentioned above, a history of syphilis was obtained, and in some of the others, in which a history was not elicited, there were collateral inflammations or signs which indicated the existence of that infection. Taking it together, the lesson taught from a study of the cases of the so-called hereditary tabes, is the same as that from a study of tabes in husband and wife, *e.g.*, that syphilis is the cause of these cases.

Tabes and Syphilis.—The real proximate cause of tabes is still unknown. Many agencies have been accused, but one only has been proven to stand in definite relationship to it. Exposure to cold and wet, sexual excesses, occupations that contribute to leg weariness, trauma, alcoholism, poisoning by ergot and lead, the arthritic and neuropathic constitution, have all been enumerated as causes of the disease, but as our experience with tabes has become larger and the natural history of the disease more familiar, we see that one attributed cause, viz., syphilis, stands out above all others. All the others play an unimportant rôle. Still tabes is not a syphilitic disease in the true sense of the word. Neither in its clinical delineation, nor in the pathological processes that constitute the anatomy of the disease is there anything that reminds of, or even suggests, syphilis. Furthermore, tabes is not amenable to antisyphilitic treatment in the slightest degree. In the face of this it must strike the mind which comes afresh to this subject that the assertion regarding its syphilitic origin is almost beyond belief. Yet the statistics of this disease, and the contrast statistics of other nervous diseases seem to show beyond any doubt that tabes follows in the wake of syphilis and stands in direct pathogenetic relationship to it.

Many investigations have been undertaken to determine the frequency with which persons with tabes have had syphilis. Some of the more important of them are set forth in the following table:

MEN AND WOMEN.

Reporter.	No. of Cases	Syphilitic. per cent.	Positive. per cent.	Possible. per cent.
Erb	1,000	90		
Fournier	1,000	93		
Redlich (Vienna)	102	90	80	10
Gowers (1889)	170	69		
Bonar (Starr's Clinic)	286	69	58	11
Thomas (Johns Hopkins Clinic)	111	63	42	21
Kuhn (Jolly's Clinic)	214	75	50	25
Silex (Tabic Optic Atrophy)	54	81.5		
Dinkler (private cases)	37	93		
Halban (Krafft Ebing's Clinic)	236	86	73	13.5
Seeligmann (Fischer's material, Constance)	100	86		4
Motschutkowsky	1,662	71.5	36	35
Guttman (Leyden's Clinic)	111	69	35	34
Thones	48	62-70		
Touche	23	55		
Anfinow	322	81	62.4	20.5
Dana	50	68		
Riley	61	71	48	23
Hirt	247	90		
Nose (Japan)	96	58	48	10
Borgherini	68	69	32	37
Bramwell	155	76	56	10
Collins	130	80	70	10

Strümpell, Déjerine, Raymond, and Hirt state the percentage to be about 90. Mendel, and Senator 75, Seguin 70. Möbius, Drummond and Quinquad and others maintain that all patients with tabes have had syphilis, inherited or acquired. On the other hand, some writers give a very much smaller percentage, for instance, Eulenberg, Motschutkowsky and Mozel give but 36 per cent. Motschutkowsky says that 35 per cent. additional of the patients might have had syphilis, making 71 per cent. Storbeck about 40 per cent. It should be said, however, that Storbeck is a follower of Leyden, who has strenuously combated the view that syphilis is the chief cause of tabes. The statistics of American writers do not show such a high percentage of syphilis as

do those of Europeans. In the series of cases published herewith, the percentage of syphilitic infection is considerably higher than that of any other American investigator.

The question of the existence of syphilis in women who hace tabes is most important. At first it was thought that female tabics did not have syphilis as frequently as other tabics, but this has been shown to be not so. It is always difficult to get a history of syphilis in women. The primary lesion is very often undiscovered, the secondary manifestations are frequently very late and trivial and rarely discovered, and again, women who have the disease deny it even in the face of the most overwhelming proof that the disease exists. One of the arguments which the opposition to the syphilitic antecedency of tabes has used is the small percentage of syphilitic histories in female tabics. This view is, however, probably founded in error as the following table tends to show:

TABES IN WOMEN.

Reporter.	No. of Cases	Certain. Per cent.	Probable. Per cent.	Possible. Per cent.	Not. Per cent.
Kron	41	40	12	30	
Nonne	22	77.3			22.7
Silex	8	87			
Fehre	41	66			
Kuhn	78	36	28		
Collins	16	70			

The infrequency of tabes in prostitutes who may be presumed to be highly syphilitic, is one of the arguments against the syphilitic origin of tabes, and although it is one of considerable weight, the explanation probably is that the majority of them have reached their destiny before the age when tabes usually develops. The few that alcoholism and exudative syphilis spare have expiation thrust upon them in the shape of insanity or succumb to intercurrent diseases. The majority are removed from the social ranks in one way or another before full maturity.

I do not intend to discuss in detail the arguments in favor or against the syphiltic origin of tabes, which has been done a number of times in masterly fashion by Erb[40] except to devote a few words to the remarks of Virchow, made on a discussion of the subject, a short time ago,[41] which constitutes the most formidable opposition of recent years. Virchow reiterated then what he had previously said in the same society (Berlin, Gesellschaft f. Psychiatrie u. Nervenkrankheiten) several years before.

Virchow's opposition to the syphilitic origin of tabes seems to be principally on two grounds. First, the lesions of the disease are not characteristic of syphilis. He maintains that when a patient has had syphilitic disease, that there are two pathological features which one rarely fails to find on the autopsy table: some form of gummatous formation and amyloid degeneration. He says that the latter is so common that when anatomists find it they at once look upon the case as one of syphilis. In tabes it is well known that amyloid degeneration and amyloid bodies are rarely found, or if they are, they are found in no greater number than the age of the individual entitles him to them. In other words, as people grow older, amyloid bodies develop in their central nervous system; second, that the statistical method, that has been pursued to prove the syphilitic origin of tabes, is not the correct one. He says (and with truth) that it would be far better to determine how many of the patients who have had syphilis with such constitutional manifestations that no doubt whatsoever can exist as to the reality of the disease, developed tabes. If this method could be pursued it would unquestionably be better than the one which we are compelled to adopt, but as neurologists dealing with the subject of tabes, we cannot determine this without the aid of syphilologists. Everyone knows the unsurmountable difficulty there would be in bringing such an investigation to a conclusion. Tabes develops from five to twenty-five years after the syphilitic infection, and in this time one generation of syphilologists passes away and with them go their case books. In reply to Virchow it may be said that it is not held by neurologists that the disease is syphilitic from the standpoint of the pathologist, on the contrary, an attempt is made to convey the idea that syphilis causes the disease (in some inexplicable way) after the virus has lost its capacity to cause reaction typically syphilitic in the cell, by classifying the disease as parasyphilitic (para, beyond). According to Virchow's own teaching, syphilis does not always cause cellular reaction pathognomonic of syphilis. When statistics are controlled in such an investigation as they are nowadays, almost invariably the frequency with which patients suffering from other nervous diseases have had syphilis being estimated, and contrasted with those of tabes, such statistics speak as much truth as statistics can be made to do. Again it is not so absolutely sure, as Virchow states, that cases of tabes coming to autopsy do not reveal lesions of different parts of the body indicative of syphilis. In 100 autopsies of tabes Westenhofer has seen such lesions 44 times. In reference to the claims of Leyden and his pupils, that their statistics do not substantiate the claim of the importance of syphilis as an etiological factor, it may be said that the testimony and evidence produced by them is not convincing. It is very remarkable that material gathered in the same city and from the same hospital can give such discordant answers to a question as that of Leyden, Silex and Jolly (see statistical table).

In estimating the relative frequency of syphilis in tabic patients, it should not be forgotten that the patient may give a negative answer to the interrogation, without meaning to deceive. He may have had syphilis (1) without knowing it, (2) may have had it and forgotten it, (3) he may have had it and been assured by a medical practitioner that it was not truly specific, (4) he

may have had it and denied it wilfully. I have had three cases in which I proved by the physician who treated the patients that they knew they had syphilis, still they denied it. It must also be kept in mind that nowadays it is generally admitted by syphilologists that the point of entrance of the syphilitic virus is not indicated by a typical local lesion, the hard chancre. On the contrary, it may produce reaction at the point of entrance, that is by no means typical of chancre as that term is ordinarily understood. That soft chancre, abrasions, etc., are undoubtedly the portal of entrance in some cases is freely admitted by some.

The frequency with which a history or evidences of syphilis was furnished by my cases leads me to the conclusion, as it has led so many before me, that syphilis must be concerned with causing tabes. As contrast statistics to those of tabes I have taken the histories of 140 cases of nervous diseases without tabes seen in private practice, in which exactly the same inquiries and similar investigation were made to detect syphilitic infection, and I find that there is 8.3 per cent. of this number that may be said to have had syphilis. In other words tabic patients have syphilis 10 times oftener than patients with other nervous diseases (excluding general paresis). In fact, the proportion is much greater than this, for patients with tabes in private practice give a history of syphilis about twice as often as dispensary patients. Despite the inclusion in my cases of tabes of hospital and dispensary patients the proportion is still ten to one.

The dominating rôle which syphilis plays in the etiology of tabes is shown most exquisitively by the occurrence of tabes in husband and wife. The number of cases in which this has been noted is very considerable. And almost every one whose work brings him into contact with large numbers of cases of nervous disease has seen such examples, as well examples of a disease which has practically the same significance regarding its origin, I refer to general paresis.

Brasch[42] has recently recorded the histories of three couples with tabes who came under his observation within a space of three weeks. In the first couple, both had tabes and both were certainly syphilitic. In the second, the husband had general paresis, the wife tabes, and from the history there could be no doubt that both had been syphilitic. In the third couple, the husband had general paresis, the wife tabes and although a syphilitic history could not be definitely obtained, the author properly says that it was very probable that syphilis had existed.

Mendel, who was the first to point out[43] the occurrence of general paresis in married people, stated in discussing the subject[44] that out of 20 couples, in six instances the husband had progressive paralysis, the wife tabes, in three cases the husband had tabes, the wife progressive paralysis, and in four cases both husband and wife had tabes. He cites another instance that is particularly instructive, in which the husband infected his wife. The husband died from general paralysis, the wife married a second time, the second husband developed tabes, and at the time when Mendel reported the case, examination of the wife showed Argyll-Robertson pupils, and loss of the patellar reflexes indicating an organic disease of the nervous system, either tabes or general paresis. Other cases of tabes in husband and wife have been reported by Kron, two,[45] Lalou, two,[46] Trevelyan,[47] Ingelvans,[48] Pearce,[49] Turner,[50] Ormerod,[51] Goldflam,[52] Luhrmann,[53] Erb,[54] Mönkemöller,[55] Gottschalk,[56] and Nonne[57].

These cases bespeak the importance of syphilis in the etiology of tabes, and their occurrence constitutes one of the most important supports of the theory that tabes is due to syphilis. Taken in connection with information to be had from a study from the cases of so-called hereditary tabes, it shows that locomotor ataxia is due to syphilis.

The Effect of Anti-syphilitic Treatment in Preventing Tabes.—The effect of full anti-syphilitic treatment, *i.e.*, the treatment which is considered by syphilologists to-day to be adequate to cope with the disease, in preventing and delaying the development of locomotor ataxia is a question that has interested me for a number of years. Six years ago I made a statistical study to determine whether or not such treatment delayed or prevented diseases that follow in the wake of syphilis. The conclusion then reached was at variance with the commonly accepted belief, so when the article was written I contented myself with a statement of what the statistics seemed to show. This was, that patients who had been treated for syphilis in the most orthodox way developed locomotor ataxia a little earlier than those who have taken anti-syphilitic treatment. This paper* has apparently not come to the knowledge of many writers, for I rarely see it referred to in the literature. Some investigators, however, who have been led to consider the point (Thomas) and have corroborated my findings. My investigations on this point, in this series, are corroborative of the conclusions reached in my studies six years ago. "In private patients in whom antisyphilitic treatment was carried out fully, tabes developed earlier than in hospital patients in whom the length of treatment was little more than three months. The study of the 26 cases of tabes in which syphilis was denied is most instructive. They developed tabes a little later in life than those who had had antisyphilitic treatment." In truth, it was from consideration of facts such as these that it became evident that tabes must be taken out of the category of purely syphilitic diseases and as the studies of the pathologist showed that the disease was not characterized by lesions typical of syphilis, the parasyphilitic theory of the disease was suggested.

The Pathogenesis of Tabes.—How syphilis

* Read before the American Neurological Society in 1896, published in the "Post-Graduate" of the same year.

produces locomotor ataxia is a question to which a satisfactory answer cannot be given at the present time. That the changes in the sensory neurons and other structures constituting the morbid anatomy of tabes is not the reaction of these cells to the syphilitic virus or syphilitic organism, whatever the cause of syphilis may be, is made certain by the fact that in the vast majority of cases this virus produces a reaction in cells of all kinds, that is fairly characteristic, and more or less uniform. The true lesions of locomotor ataxia have nothing in them that suggest such reaction. The most plausible theory that has been so far suggested to explain the modus operandi of the syphilitic poison in producing tabes is, that during its existence in the system there is developed a toxin similar in some respects to those of other infectious diseases dependent upon specific organism, such as diphtheria, which in most instances the economy contends with successfully, but which in others exercises an injurious effect upon the central sensory neurons particularly at their origin to cause the disease locomotor ataxia. Why the posterior columns of the spinal cord should be selected for the pernicious activity of the toxin in some cases and not in others, must be explained according to the laws of vital resistance. If they are predisposed to disease by heredity or by experiences which have exhausted some of their vital resistance, it will readily be seen that this may constitute the predisposing cause.

The Etiology of Tabes. Summary.—In truth all that we know of the etiology of tabes may be said in a line: it occurs in civilized, mature men and women who have had syphilis, and in children who inherit syphilis. Why it occurs we do not know. We know that it follows in the wake of syphilis because the vast majority of the patients we see with it give a direct or indirect history of that disease, or unequivocal manifestations of it. Knowing how widely disseminated syphilis is, and how frequently nature (aided by medication) is able to overcome the poison, *i.e.*, how often syphilis is cured, we marvel why the few are chosen for tabes and the many are spared. In our perplexity we search the entire clinical horizon for a cause. One assumes it is an inherent weakness of the sensory neuron, an abiotrophy (to use Gowers' term) of these cells, and inherited condition; or an acquired weakness brought about by excesses known to be injurious to highly developed nerve-substance and by mental and physical fatigue, particularly the latter. But exhaustive and critical study of our cases does not justify the assumption. Others maintain that exposure, chilling, or injury, are the causative factors that alter the resistance of the sensory neurons, so that the real cause of the disease may become operative. Study of our cases, however, does not support this view, and so it is that we are led to the statements contained in the first sentence of this paragraph. I do not mean to deny that tabes may and does occur more readily in persons whose sensory neurons are so constituted from heritage or acquisition that they are susceptible to pathological irritation. Very likely they do, but this has nothing to do with the cause of tabes. The men who write the poetry, paint the pictures, or make the laws of a nation, are more highly organized, sensitive and irritable than the men who do not, but irritability does not cause genius.

The clinician has shown that tabes is due to syphilis, *i.e.*, follows in the wake of syphilis. The bacteriologists must discover the cause of syphilis, or if it has been discovered, corroborate it, and cooperating with the physiological chemist, discover the immediate cause of locomotor ataxia —and of general paresis.

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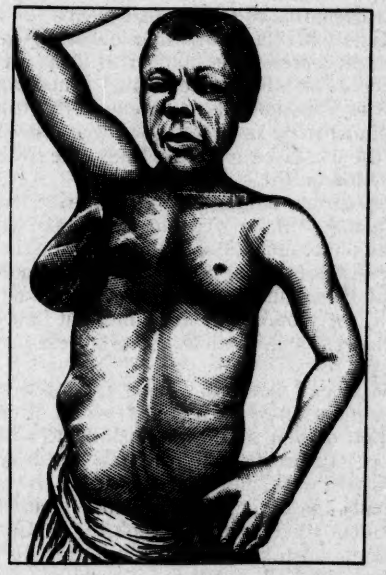
Reception to Dr. Manley.—Dr. Thos. H. Manley, of New York, was tendered a reception by the medical profession of Hartford, Conn., at the Hunt Memorial, Monday evening, Dec. 22, and he gave a lecture on "Stenotic Obstructions of the Large Intestine." The following day, on the invitation of the Medical Staff, he operated at St. Francis' Hospital.

A CASE OF SUPERNUMERARY BREAST IN THE AXILLA OF AN ADULT MALE.*†

BY FREDERIC GRIFFITH, M.D.,
OF NEW YORK;
FELLOW OF THE NEW YORK ACADEMY OF MEDICINE.

THE photographs and history of this case were obtained in March, 1902. Yappa is a Bushman, a well developed, muscular male aged twenty-five years. He is married to six wives and has a number of children. He is the assistant headman in the village of Sappaley in the interior of the Niger Protectorate, West Coast of Africa. When taken Yappa was in charge of slaves loading vessels in His Majesty's transport service on the Guinea coast. Though in superstitious dread of the white doctor a bribe in the shape of two bottles of gin (current coin equal in value to 50



cents) loosened his tongue and permitted the use of the "black box" after other photographs had been shown and adequate explanations made.

The anomally has existed since the age of fifteen, puberty is reached in the male child of this region at the age of ten years. Upon inspection and palpation the tumorous appendage is found to extend down from the right axillary space between the third and seventh ribs. The base is oval and is bounded in front by the outer border of the great pectoral muscle behind by the latissimus dorsi and extends to below the inferior angle of the scapula. Freely movable, it has the typical doughy feel of the female breast. Handling and work do not cause pain or discomfort and active movements of the arm are not impeded by the tumor bulk. The nipple is erectile, well formed and stands out prominently upon its areola, posteriorily below and to the outer side of the inferior angle of the scapula. Nipple and areola

are somewhat lighter in color than the surrounding skin. The normal nipples are likewise prominently placed at their usual sites over the pectoral muscles. Manipulations and milking of the

breast demonstrated that there was no fluid present or connecting opening through the central nipple pore. An offer to remove the anomaly was scornfully refused and it was developed that far from being a useless appendage the super-

* Presented at the New York Academy of Medicine. Nov. 10, 1902.
† It is through the courtesy of Dr. James F. Donnelly, Colonial Surgeon in His Majesty's Royal Army Medical Corps, on duty in the Niger Protectorate, West Coast of Africa, that I am enabled to present the history and fine photographs of this rare condition in the human male.

numerary breast was of distinct personal value, for its possessor was held in awe by his less fortunate fellow tribesmen.

A review of the literature fails to show any well-authenticated case of axillary breast development in the male. Roger Williams, who has tabulated the cases of supernumerary breast development, writing previous to the year 1894, says of this anomaly that "in animals axillary mammæ are most exceptional, but they are met with in the pteropi (fruit bats) and in the galeopithecus or flying lemur;" and of humankind he says further, "While I have found on record numerous instances of so-called axillary mammæ in the female, when one comes to examine these cases critically only a very few of them can be definitely accepted as such; most of them are of the nature of axillary mammary extensions or sequestrations. I have not met with a single instance of the kind in a male."

805 Madison Avenue.

THE DIURETIC ACTION OF RECTAL IRRIGATION. THE SPECIFIC ACTION OF NORMAL SALINE SOLUTION IN THE PRODUCTION OF DIURESIS.*

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By courtesy, I have been invited to discuss the topic "Puerperal Eclampsia;" especially that portion of Dr. Stewart's paper referring to the diuretic effect of rectal irrigation. Of the general employment of water as a diuretic, it is unnecessary to speak. It is my chief intention to call to your notice the fact that normal, or more correctly speaking, deci-normal, saline solution, has a specific effect on the kidney cells, in promoting diuresis and that this occurs, whether the solution is administered by infusion, by hypodermoclysis or by enteroclysis. It occurs, even when such small quantities are employed that the attached mercurial manometer demonstrates no increase in arterial tension. It takes place even when the renal nerves are sundered.

Foster's experiments regarding the diuretic effects of small infusions were duplicated by me in the physiological laboratory of the College of Physicians and Surgeons. I furthermore experimented with hypodermoclysis and with enteroclysis, and in regard to the latter, I will give a brief description of the method employed.

On one side of a dog was placed a small vertical standard with a lever bearing a spatula at the end. The left ureter having been catheterized, drops of urine pass through a tube and fall upon the spatula. The impact of every drop is registered on the smoked paper of a kymograph, by means of a tambour, an ingenious mechano-pneumatic transmitter. Each trace of a urine drop appears like an inverted V. The urine from the catheterized right ureter was carefully collected and measured, at stated intervals. The mercurial manometer, attached to the carotid artery, noted the heart impulses, on the revolving drum of a kymograph.

It was necessary to demonstrate the period when absorption from the intestine occurred and when the diuretic action began. One quart of a normal saline solution, plus five c.c. of a five-per-cent. solution of ferrocyanide of potassium, were employed, through a recurrent irrigator; the returned fluid being caught and used over again. The urine was tested every minute with chloride of iron. In 20 minutes, the Prussian blue reaction appeared, thus demonstrating the average rapidity of absorption from the intestine and the period when renal secretion begins.

Furthermore, either a small enema, or an enteroclysis with the above solution at 99° to 100° F., would increase the number of drops of urine, registered on the kymograph, synochronously with the Prussian blue reaction to the iron test. The manometric tracings showed no rise of pressure, the increased secretion being due to the specific action on the kidney cells.

I report one unique case of oliguria; the average quantity of daily urine 14 ounces, enemata *of nine ounces of normal saline solution, in three*-ounce divided doses, hourly for three hours—the patient being unable to retain a larger quantity. Result, forty ounces of urine in eight hours, thus demonstrating the action of a small enema on the kidneys.

The second important effect produced by normal saline solution, to which I would direct your attention is, that it will diminish acute renal congestion. Experimentally this fact has been demonstrated by me and reported at the New York Academy of Medicine, in a paper entitled "The Treatment of Scarlatinal Nephritis." Clinically, it will diminish acute renal congestion by any of the three methods noted.

We have frequently seen profuse diuresis and the gradual disappearance of albumin, casts and blood, the increase of urine commencing in 20 minutes (the interval of absorption) at all temperatures of the irrigating fluid. Cold irrigations, we would state, are only temporarily stimulant, then depressant and when continued, on account of the depression and ultimate shock, decrease the quantity of the urine. We consider them dangerous in kidney conditions.

With the irrigating fluid at temperatures of 110° to 120° F. there are two cycles of increase of the urine, while from the lower degrees of temperature there is but one. In the first instance there is an average point of maximum stimulation at the end of ten minutes, corresponding to the general increase in the circulation, and an earlier diuresis, in addition to the usual later diuresis from absorption of the fluid. In uremic conditions the high arterial tension is due to toxemia and the tension of the renal vessels is propor-

* Discussion of Dr. D. H. Stewart's paper entitled "Puerperal Eclampsia, its Surgical Treatment," read before the West End Medical Society, Nov. 1, 1902.

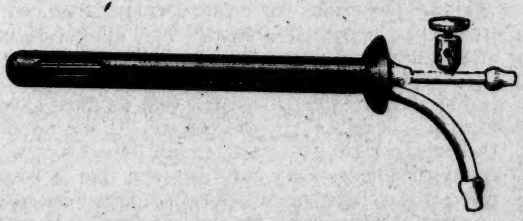
tionately greater than that of the general circulation. Hot enteroclysis would aid in re-establishing the proper circulatory relations. It imparts a certain degree of warmth to the kidneys, by contiguity and, in addition, temporarily raises the temperature of the blood in the iliac vessels from 0.5° to 0.8° F.; in effect an active poultice. We have demonstrated this experimentally, as well as clinically.

The clinical experiences of Drs. William H. Thomson, Simon Baruch and others, as well as my own, establish the fact that even with high arterial tension, though there may be an evanescent increase due to the higher temperatures of the solution, yet irrigation at 110° to 120° F. causes a profuse diuresis, diaphoresis and bowel action, followed by a rapid fall of pulse tension and a marked improvement in the condition of the patient. I would advocate continual enteroclysis at 110° F., gradually increasing to 120° F.

The old method of allowing the patient to void the fluid about the single long enema tube, is both uncleanly and inaccurate. Moreover, the adult rectum is eight inches long—the sigmoid flexure 17½ inches, and after allowing, for the sphincters and space for insertion of the tip of a fountain syringe, a rectal tube nearly 30 inches long would be required, to pass through the sigmoid and reach its junction with the descending colon. I merely state anatomical facts, yet how often do we hear the fallacy described, of passing the colon tube well into the descending, or even into the transverse colon? On the other hand, the infant sigmoid lies only three and one-half inches from the sphincter. In the adult, the five inch irrigator combined with elevation of the hips, is efficacious for a high irrigation.

The advantages of the double current irrigator are that the temperature and quantity of the solution can be definitely regulated and that the continuous heat can be kept up. One can improvise a recurrent irrigator by means of two catheters passed through a perineal pad.

Many double-current irrigators have been devised, such as Bodenhamer's, Skene's, Tuttle's, Chetwood's and others, in all I could describe about 20 varieties. We present, however, our



latest instrument, which is simple in construction and is readily cleansed. You will observe that it is furnished with a binding pole. This is for electrical enteroclysis in post-operative intestinal paresis, or in chronic constipation.

Now, as to method: Place the patient in the dorsal position—foot of bed slightly elevated. Discard the bedpan and protect the bed by rubber sheeting. Drain by a carry-off tube into a pail. The outflow tube must be pinched, as its caliber is larger than the inflow; otherwise the fluid would not pass up the bowel.

Employ from three to 12 gallons at a sitting, from a pint to a quart being kept continuously in the bowels. It is well to empty the lower bowel by enema before the first irrigation. If this is impossible, the irrigation itself will produce the result desired. The irrigations may be given every two to three hours, if necessary, in severe cases, as in threatened suppression of urine. The amount of fluid absorbed during irrigation, varies, depending somewhat on whether previous bowel action has occurred and also on the circulatory conditions. In any event, absorption of the fluid and stimulation of the kidneys occur.

In a case of Dr. William H. Thomson's 13 quarts of normal saline solution were employed as a standard at each irrigation; the fluid was measured after irrigation and deducted from our standard quantity to show the amount absorbed. In addition, to eliminate error, all material passed from the bowel within an hour after irrigation, was also deducted. These tests were carried on every day for three months. This patient on one occasion absorbed three quarts, several times, two quarts and quite frequently 1½ quarts. The general average was about one quart out of 13.

In a second case the urine increased from 18 ounces daily to 125 ounces, after irrigation for four days—enteroclysis having been given three times daily. In a case of oliguria with double pleurisy with effusion in a patient of Dr. William H. Thomson's, the daily quantity of urine being 12 ounces; after the employment and failure of various drugs—diuretics and diaphoretics; with rectal irrigation alone, in the space of four days—the urine increased to 40 ounces a day and in two weeks it rose to 70 ounces in the 24 hours and the effusion on both sides had disappeared.

In conclusion, let me say that I have endeavored to impress upon you the great value of the procedure of scientific rectal irrigation as a diluent of the blood and a prompt producer of diuresis, diaphoresis and bowel action. Furthermore, I fully endorse what Dr. Stewart has emphasized, the fact that you cannot afford to wait with folded hands for any slow or uncertain results in such a disease as puerperal eclampsia, when the maternal life chances are only about one to two and the child's risk is about even. With frequent small venesections combined, with properly administered irrigations you may turn the scale in your patient's favor in one-half hour; 10 minutes for the venesection and 20 minutes for diuresis to follow the enteroclysis. In addition, it would suggest itself to us that an infusion of normal saline solution at 120° F., the correct temperature as demonstrated by Dr. Dawbarn, given at the site of the venesection, might prove of the greatest value.

The administration of hypodermoclysis is also a rational treatment.

HEMATOCELE.

BY W. C. BOWEN, M.D.,
OF BELTON, S. C.

HEMATOCELE comes under the head of Minor Surgery, but by no means should it be considered an insignificant matter, as it involves the neighboring parts of one of the vital points of human anatomy, viz.: the testes.

We will observe in the first place its origin: it may be from heavy lifting,—an unusual strain, or a spontaneous rupture of a blood vessel ramifying the tunica vaginalis or the cord. We will note that we have two kinds of hematocele, first of the cord, second of effusion of blood from a ruptured vessel (generally a vein) in the tunica vaginalis. Of the tunica vaginalis we have an enlargement of the testis with the effused blood pointing upward following the cord. These enlargements from the ruptured veins are of no little concern to the patient nor are they of such a small matter to the surgeon. The patient comes with much anxiety to his physician and at times with a history of quite a good deal of pain, and in a decided majority of cases of uneasiness as well. You inquire into his daily habits. Should you discover that severe physical labor is the only reason he gives you, you then set about to differentiate between hydrocele and hematocele. What should you do? First find out if your patient was ever tapped for hydrocele, then, if he has been, find out if it is another hydrocele; or when you have a hematocele from the tapping of hydrocele. Place your light well behind the scrotum, and if the fluid is transparent you certainly have another hydrocele; if not transparent, you can safely tell your patient that another trouble has started up, viz.: hematocele. Should the hematocele be caused by injury there will be a sudden snapping of the vessel and a rapidly filled tunica vaginalis if allowed to stand any length of time; the tumor may become hard from the inflammation set up by the blood acting as a foreign body. The testicle will generally (upon examination) be found in the lower posterior part of the sac. We will sometimes find that the fluid has become cartilaginous. In making the diagnosis, we should rely upon the history. Hematoceles as a rule do not remain quiet and are less troublesome than hydroceles.

A hydrocele may lie quiet for years without any apparent discomfort to the patient, not so with hematocele. As time rolls on it will begin to find a place for an outlet, and herein lies the most important point in making an early diagnosis and relieve the affected part at once. Quite often the source of blood is rather difficult to understand, especially with a perfectly healthy testicle. After an operation for hydrocele we may have a hemorrhage on the tunica vaginalis which flows inside and consequently fills the sac, or we may have a slight bleeding from one of the vessels of the organ itself. There is one case on record where the trouble came from a wounded spermatic artery, and, in fact, Sir A. Cooper had a case where there was a distinct rent in tunica vaginalis.

Treatment.—The hemorrhages either in the tunica vaginalis or cord are to be treated alike and in the same way as hemorrhages in any other part of the body: first applying ice packs alternated with hot lotions and leeches, elevating the scrotum and perfect rest. Should the hematocele remain the same for some little time, tap with your trocar. Very often rest and ice bags will cause the blood to be absorbed. Try everything at your command, but by no means excise the organ.

WHY CHLOROFORM SHOULD BE USED IN PUERPERAL ECLAMPSIA.

BY DOUGLAS H. STEWART, M.D.,
OF NEW YORK CITY.

SUGAR is an antiseptic. If any man should doubt this it is not necessary to make a small figure and refer to Lauder Brunton. Let him consult with that best of authorities—his own wife—who will demonstrate her experiments, not with the test tube, but with the preserve jar. And if there should still be doubt as to the "keeping" properties of glucose (dextrose) he might investigate some "strained honey." If unconvinced, after the above, let him take two test tubes full of urine and adding glucose to make a two-per-cent. solution in one, leave the other as it is. Then test the two tubes daily for the alkaline reaction. It will be found in the ordinary urine at least six days before it is present in the glucose solution, the interval being varied with the temperature, that is, inversely.

It is the general opinion that the alkaline reaction in decomposing urine is due to the production of carbonate of ammonia and we know that one of the many elements in the toxemia of puerperal eclampsia is the changing of urea into ammonium carbonate. This salt is demonstrable in the feces in eclampsia and it is the result of the principal change in that complex blood poisoning which by its effects on the nervous system gives rise to the convulsions which are so characteristic.

Many physicians know that chloroform controls those convulsions better than ether. It is also well known that chloroform produces a temporary glycosuria. And if we have glycosuria, is it at all far-fetched to assume that we must have glucose (dextrose) in the blood? If we admit the presence of this sugar in the blood we can easily demonstrate by our test tube that it does prevent the changing of urea into ammonium carbonate. No doubt every physician will bear me out in the statement that while severe grades of diabetes are often complicated by grave forms of renal disease; uremic convulsions are very rare. Perhaps the reader, like myself, has been surprised that in a diabetic all the conditions may be apparently right for a convulsion, but it never occurs unless there is an epileptic history.

Admitting the above, does it not seem that

chloroform with its accompanying glycosuria is the anesthetic par excellence in puerperal convulsions? Not that it will inhibit the development of all the poisons n the toxemia; but it will limit the production of the chief one.

121 West Eighty-eighth Street.

MEDICAL PROGRESS.

GENITO-URINARY AND SKIN DISEASES.

Dependence of Skin Affections upon Nutritive Disturbances.—Some time ago the statement "that skin affections are due to nutritive disturbances producing a lithargic condition of the skin, an inefficient stimulation of the nerve twigs" was made by W. R. I. DALTON (N. Y. Med. Jour., Nov. 1, 1902). He believes that bacterial agencies cause septic and putrefactive changes in the alimentary canal and that the toxins thus developed exert a selective action upon the primordial protoplasmic group of cells. In order to diminish, so far as possible, the conditions favorable for the growth of micro-organisms he insists upon a movement of the bowels every day, an abstinence from alcohol or malt beverages, a denial of all sweets and meat for six weeks, although fish and eggs may be taken. Water should be drunk frequently, especially before breakfast. A tablet, to be taken after meals is compounded as follows and seems to have a very desirable effect in meeting several of the indications:

℞ Naphthalin .....gr. j
Ipecac .....gr. ss.
Charcoal (willow).....gr. jss.
Calomel .....
Strychnine .....
Pilocarpine ..... aa gr. 1/100
Ft. tabella ad capsula j.

Ordinary Soap in Sweating of the Feet.—This condition is exceedingly annoying to the unfortunate who is the victim of it. G. A. STEFANOVSKY (La Sem. Méd., Oct. 22, 1902) has found the following procedure to be of value. The feet are first washed in ordinary water, and the soles, from which the worse sweating usually proceeds, are lightly rubbed with a piece of ordinary soap, softened in water. After a few minutes, when the lather of the soap is almost dry, the stockings and boots are put on. This treatment must be repeated three times a week. By degrees the washing with which the first treatment was begun may be decreased, and finally, omitted. This observer has used this procedure in some 20 cases of hyperhidroses plantaris, of which three presented maceration and ulceration. In all, within a short time, the quantity and foulness of the secretion decreased. The application of the soap produces a pleasant sensation of moisture and softness. It is recommended as a simple and efficient means of curing this socially inconvenient condition.

Clinical Study of Nail Disease.—Until the publication of Heller's monograph there was no single work which covered the whole pathology of nail disease. In connection with Heller's work a clinical study of 485 cases of nail disease by C. J. WHITE (Bost. Med. & Surg. Jour., Nov. 13, 1902) assumes an unusual degree of interest. Six conditions provide 404 out of the 485 examples of pathological nails. Eczema is a prolific cause. The changes observed in this disease may occur in the nail walls, matrix, bed and plate. In the acute form the nail walls are red and swollen, the plate loses its normal convexity, pain is felt in the bed, the luster vanishes, discoloration is present and soft spots appear which later form minute punctate depressions. The pathological changes consist in the formation of eleidin and horny matter rather than the normal nail substance, together with edema and cellular infiltration about the vessels of the corium. Trauma or felon are two accidents which frequently befall the nails; if the matrix is affected the nail is permanently changed. The commonest deformities are transverse depressions, vertical ridges, hyperkeratosis subungualis and discoloration. Paronychia is an acute or subacute process, and usually occurs in women who wash dishes and scrub floors, but any constant irritation may produce this local disease. The most common nail changes are discoloration, transverse depressions and hyperkeratosis subungualis, with its usual sequelæ. These consist in lifting of the plate and subsequent discharge of the keratosic granules from the bed, leaving a flat, horny floor covered by a thin, dome-shaped roof. In cutaneous psoriasis the involvement of the nails is relatively much commoner than is the rule in eczema. This disease can exist alone in the nails, but the diagnosis is truly hazardous. The condition is most frequent in men and between the ages of twenty and forty. Unna and Heller regard the appearance in the plate of round, punctate depressions as pathognomonic of psoriasis, but White states that this condition is found also in eczema of the nails. His experience showed the commonest lesion in psoriasis to be the advanced changes subsequent to hyperkeratosis of the bed. Two other common lesions are yellow to dark-brown discoloration and transverse depressions. Noxious occupations produce the condition known as dermatitis professionalis; the common symptom is koilonychia. Syphilis of the nails is a rare condition; the local manifestations vary with the stage of the disease. Tinea favosa and tinea trycophytina of the nails are rare conditions; the plant attacks the distal end of the bed and produces an opacity and discoloration which spread backward. Eight cases of tinea favosa were observed in Russian Jews. In the various diseases just enumerated diagnosis can rarely be made without the aid of the microscope, unless the skin is also attacked.

Lupus Erythematosus.—From a study of 71 cases of this disease, J. H. SEQUEIRA and H. BATEAU (Br. Med. Jour., Oct. 25, 1902) conclude (1) That it is due to a circulating poison or toxin; (2) that in its acute disseminated form it is associated with tuberculosis in the majority of cases, but that in the discoid form this association is much less apparent; (3) that the occurrence of albuminuria is part of the toxic effect in acute cases; (4) that the toxin acts through the vasomotor system as the areas are so constant; (5) that local irritation and a poor peripheral circulation sometimes determine the site of lesions.

Urinary Neuropathy.—Epidural injections of artificial serum in the treatment of urinary neuropathy is the subject of a note by F. CATHELIN (La Sem. Méd., Nov. 5, 1902). The good effects which Albarran and Cathelin obtained in incontinence of urine from various causes, by means of one or several epidural injections of a solution of cocaine or more simply, of a physiological solution of chloride of sodium led Cathelin to try the same methods in those conditions which Guyon has designated by the new name of false uremia, and which without having appreciable organic lesion of the urinary apparatus, present most frequently symptoms of psychic origin. The experiments which he instituted were carried out on cases of pollakiuria diurna, impotence, nocturnal pollutions, false urethritis, false cystitis, false prostatitis, etc. His results were uniformly good, and a number of his patients were discharged cured. He injected only artificial serum in doses of 15 c.cm. He assumes that the action of these injections may be due to the vertebral traumatism, or to the influence of arrest

upon the centers of the medulla, especially those which control the bladder, anus and sexual organs.

Lavage Under Pressure of the Urethra in Non-specific Urethritis.—According to the experience and judgment of ORLIPSKI (La Sem. Méd., Nov. 12, 1902) copious lavage of the urethra under pressure, to which resort is ordinarily not had except in specific urethritis are equally advantageous in other inflammations of this passage, particularly in spermatorrhea, prostatorrhea, occlusions and nocturnal incontinence. Spermatorrhea is usually caused by inflammation of the posterior urethra of chronic type, or by weakness of the ejaculatory ducts, and is most frequently invited by abuse. The same factors appear usually in prostatorrhea. Usually lavages of the urethra appear to exercise upon the muscular tissue and elastic tissue about these ejaculatory ducts in the prostate and about the seminal vesicles a strong tonic action, by the joint irritation of mechanical, thermol and chemical means. Similarly it appears that these irrigations cure the very condition which is the cause of all the trouble. In most of his cases a very rapid cure is obtained in 15 days, even when they had proved themselves rebellious to other usual forms of treatment. As a precaution it is advisable to repeat the treatment after a few days of rest in order to avoid relapses. The lavages are repeated regularly once a day, and in the worst cases, twice a day. The temperature of the fluid injected may be warm or cold, provided there is a distinct difference between its temperature and that of the body. The same irrigations he has found to be very efficacious against pollutions, which appear for the most part to be due to the presence of hypertrophy at the prostate. They tend to quiet hyperemia, hyperesthesia and other conditions of the deep urethra. It is advisable to begin these irrigations at a temperature of the body and gradually decrease it, perhaps, by eight degrees. It appears unnecessary in these cases to add any medicine. Incontinence of the bladder has yielded very well to the same treatment in cases which had defied faradization.

Gonorrheal Ophthalmia.—Among the possible sources of gonorrhea of the eyes in children, wearing apparel from adults must never be forgotten. A case in which affection appeared to have come from a kid glove is reported by F. GRIFFITH (Jour. Cut. and G.-U. Dis., Dec., 1902). A boy, aged eight years, while at play in the street found a lady's kid glove, which he put on and continued to wear in his play during the rest of the day. From rubbing his face the child's left eye became infected, and at the end of 24 hours inflammation had closed the lids. Owing to ignorance of the seriousness of the infection on the part of the boy's mother, home remedies were employed until too late to repair the damage. The child was brought to the hospital, where it was discovered that ulceration and sloughing of the cornea had destroyed the sight. Treatment at this stage could do little save to protect the sound eye from further danger of contamination from the profuse purulent discharge coming from the infected orbit. Later the shrunken distorted organ was removed. The danger which the gonorrheal patient becomes to himself and to those with whom he comes into contact must be ever borne in mind by the surgeon, the present instance serving to make this more impressive.

Herpes Zoster.—A case of zoster of the eleventh dorsal root, followed by a general herpetic eruption, part of which was segmental in distribution, is reported by C. J. ALDRICH (Jour. of Cut. and G.-U. Dis., Dec., 1902). The man was thirty-two years old, married, commercial traveler, of powerful athletic built, with good family history, and without any previous severe illness excepting gonorrhea and possibly syphilis five years ago. On August 10 he was in Minnesota and had been fishing and swimming in a lake; soon after this he began to feel a sensation of general malaise, chills, fever and aching pains throughout the body. On August 13 he was attacked with severe pains in the back and loins in the area of the cutaneous distribution of the eleventh dorsal segment. The pain soon became extreme and in 24 hours a rash appeared in that region. After this the pain seemed better, but the rash became very tender to touch. When the author saw him on August 18 he was suffering a great deal of pain. The doctor's diagnosis of herpes zoster was confirmed. It was of bright pink color, confluent, sensitive and painful. The patient was taken to the Cleveland General Hospital, and about August 20 developed a typical herpetic eruption of very extensive distribution. There was a cervical distribution which was sufficiently marked to be accurately followed, but elsewhere it was diffuse and followed no segmental lines. The second eruption was not preceded or followed by any constitutional disorder, running the course of ordinary herpetic eruption, and, besides appearing on the surface of the body, was found on the conjunctival, buccal and labial surfaces.

Fingernails.—The clinical aspect of the treatment of some rare affections of the fingernails was the subject of a paper by F. J. LEVISEUR (Jour. of Cut. and G.-U. Dis., Nov., 1902). He especially calls attention to an affection of the nails which is of parasitic origin, though not due to any well-known vegetable parasite. The following are the points he offers: It has been seen only in adults, where it is usually found in combination with seborrhoic eczema and pruritus ani or scroti. It attacks the nail-plate primarily, starting from the region of the lunula, and very quickly spreads all over the nail. The individual lesions are minute, round, shallow holes of the size of a very small pinhead, arranged sometimes in regular concentric lines. The entire surface of the nail-plate is covered with them. When the disease starts on its way to recovery the lesions slowly disappear, beginning at the proximal end. The nail is not shed, but the clearing-up keeps pace with its physiological regeneration. The affection somewhat resembles that described by Hebra, Lailler and Schutz (état pointillé des ongles—thimble-nail) which was found to be a characteristic and early symptom of psoriasis. But it never begins, like the latter, with bright red points, hyperemic in character on and around the lunula. The individual lesions are of much smaller size. Furthermore, he has never seen it together with psoriasis elsewhere on the body. On nine cases, which he has collected so far, three were physicians, one a lawyer, one a waiter, two women occupied with ordinary housework, and two business men. The men's attention in every instance was called to their diseased nails by the absence of the natural gloss of the nail-plate, giving it a disagreeable, dirty appearance. Five cases had a seborrhoic eczema, some on the scalp, some on the body, or both. In one male case there was present a seborrhoic eczema of the scalp and body, and pruritus ani. The women, who were dispensary patients, hardly knew of the presence of this affection. One woman had general pruritus; the other was to all appearances free from any skin affection. As a rule a number of fingers are attacked. In one case it was only the thumb of one hand. The disease has no tendency to appear symmetrically. Frequent manicuring or vigorous therapeutic measures aggravate the condition and often obscure its true character by producing an eczema of the surrounding skin. If an alkaline solution is applied to the diseased nails, they are liable to assume a dirty brown color. This is particu-

larly the case after an application of liquor carbonis detergens, the discoloration remaining for a surprisingly long time. As stated above, a microscopical search for vegetable parasites was futile. In regard to treatment, he has found that salves do not make any impression upon the disease. In four cases a cure was effected by the use of a one-per-cent. solution of permanganate of potash. The fingers were bathed for 10 minutes twice a day, and the discoloration due to the permanganate then removed by a second bath consisting of a two-per-cent. oxalic acid solution.

Renal Damage and Phloridzin.—Many authors have, up to the present time, been in the habit of testing the functional activity of the kidneys with phloridzin, and have been emphatic in their assurances that the drug caused no damage; von Kossa, Sellig, Hartogh, Schumm and others have found that in rabbits and dogs disproportionately large doses cause albuminuria and degeneration of the kidney epithelium, with hemorrhage. That a dose of phloridzin in man, of only 5 mg., subcutaneously, may cause damage to the kidneys is recorded by O. PILECKE of Berlin (C'blatt. f. Krankh. der Harn- u. Sexual Organe, B. 13, H. 10). This is an important observation, both on account of the authority of the report and of the fact that this is the only example of this trouble he has observed in upward of 100 cases in which he has used the drug. Evidence is therefore cumulative, that he has correctly observed the cause of the trouble.

OBSTETRICS AND GYNECOLOGY.

Gangrene and Spontaneous Elimination of a Large Myoma.—The symptoms which the following case of this rare disease presented will be of general value. It is reported by J. SCHMAUCH (C'blatt. f. Gyn., Nov. 8, 1902). The woman was forty-three years old; bis gravida. with a history of regular menstruation every 22 to 25 days persisting eight days, with considerable loss of blood. For the past four years her periods were marked by the appearance of shreds and great pain in the lower part of the abdomen, but no physician was ever consulted. On account of persistent watery discharge, the patient sought relief in February, 1902, at the clinic. The examination showed a person of medium height, very pale, only 30 per cent. hemoglobin, with normal temperature, presenting at the level of the navel a hard, large tumor, easily displaceable to the side, and apparently consisting of the enlarged uterus. In the vagina there was a bad-colored and foul-smelling watery discharge in which various shreds were mixed. The cervix was almost obliterated and opened to the size of a half dollar, with a thin margin, and presenting in the opening a soft, smooth mass, feeling somewhat like the bag of waters just prior to rupture. The mass was free within the cavity of the uterus. The diagnosis was therefore quite easy that a necrotic detached myoma was present. The treatment consisted in the removal, piece by piece of this mass from day to day, so that in three sittings about 400 grams by weight had been taken without any bleeding. Microscopical examination confirmed the clinical diagnosis. The after-treatment consisted in douches of bichloride of mercury $^1/_{2000}$, which provoked strong contractions of the uterus, and were therefore discontinued. With the aid of ergot and lysol douches the uterus returned to somewhat near the normal size, so that the final result would indicate that the patient's ultimate recovery would be complete.

A New Method of Resuscitation.—There are several well-known and well-tried methods of stimulating respiration in the newborn, which are familiar to everyone. The following, however, may be quite new, and certainly is worthy of attention. M. MUNKEVITCH (La Sem. Méd., Nov. 5, 1902) begins by freeing the mouth, pharynx and upper air passages of mucus. Then, after having cut the umbilical cord, he proceeds to cause artificial respiration by taking care to give the body of the child a point of support (un point d'appui) instead of holding it in suspension, which is one feature of Schultze's method, in common use in France. He seats the infant upon a bed or table, suitably covered to prevent slipping or chilling, with the lower legs extended and separated. Standing behind the child he places his two hands beneath the axillæ so that the thumbs rest upon the shoulder-blades, and the fingers upon the ribs in front. He now proceeds to carry out the movements of respiration with the trunk by flexion and inclination toward the angle of separation between the lower limbs, exerting meanwhile uniform pressure with his hands upon the chest. In this manner he forces the diaphragm upward, while he compresses the chest, and thus brings about expiration. The reverse of this maneuver constitutes inspiration. In order to make the maneuver still more efficient, he sometimes places some tunic rolled into a small mass behind in the small of the child's back. The movements of flexion and extension are repeated systematically, and their rapidity should not be greater than that of ordinary infantile respiration, namely, about 40 to the minute. According to this observer's experience, it is a very efficacious method of causing a child, who otherwise might die, to breathe.

Extra-uterine Pregnancy.—After giving a detailed report of two cases of extra-uterine pregnancy, ODON TUSZKAI (Gaz. de Gyn., Oct. 15, 1902) gives the following as his conclusions in the symptoms and etiology of extra-uterine pregnancy: (1) The patients are usually multipara; (2) inflammatory disease is often present previous to conception; (3) there is usually a long period before the previous delivery; (4) the menses cease for eight to ten weeks and then appear in the form of irregular and abundant hemorrhages; (5) in the fifth or seventh week there are intermittent pains in the abdomen, which increase in intensity; (6) the signs of probable pregnancy are already present in the pigmentation and the livid color of the genital mucous membranes. The majority of these cases terminate well, if a diagnosis be established before rupture takes place. The signs and symptoms in the third month and previous to that time are decidedly uncertain. The microscopic examination of the scrapings of the uterus, where an extra-uterine gestation is suspected, may in some cases give some clue to the true state of affairs; hence, the author advises that this be done if there is any doubt. Snoolsky showed the importance of the clinical signs in the first three months of this condition. In this the author concurs.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Thrombi Due to Agglutinated Red Cells.—It has been found by S. FLEXNER (Univ. of Pa. Med. Bull., Nov., 1901) that agglutination of red corpuscles intra vitam is not uncommon in infectious diseases in man and animals. This agglutination causes a special variety of thrombi, which may be denominated agglutinative thrombi. When such thrombi are old, or when the agglutination is compact, they may present appearances to which the name of hyaline thrombi has been applied. Other alterations in the blood than those arising in infectious diseases, may bring about agglutinative thrombosis, and the nature of this alteration is little understood. Poisons which destroy corpuscles rapidly are provocative of agglutinative thrombosis. The so-called fibrin-ferment thrombi are probably nothing else than agglutinative thrombi.

Very Small Bacteria and Their Passage Through Filters.—Since some of the pathogenic germs can pass through the usual bacterial filters, it was assumed by E. v. ESMARCH (C'blatt f. Bact., Parasit. u. Infect., XXXII., Nos. 8 and 9) that such small bacteria also occur among the saprophytes. Negative results were obtained by the examination of about 50 fluids in a state of putrefaction, yet in one case the filtrate became turbid after 10 days. The microscopic examination showed the filtrate to be a pure culture of a cholera-like vibris, which appeared as a spirillum upon certain culture media. It was as large as an influenza bacillus, did not liquefy gelatine and possessed no pathogenic properties. The author gave to this germ the name spirillum parvum.

Syphilis and Malaria.—In contrasting syphilis with malaria, R. RUGE (C'blatt f. Bact., Parasit. u. Infect., XXXII, Nos. 8 and 9) concludes that the germ of the former disease may also be a protozoan, since the two diseases resemble each other in many particulars. In both there is a distinctly limited period of incubation, transmission is possible in the early stages, a long continued immunity remains behind, there is a great tendency to recurrence, and the brain is often involved, though in syphilis only in the later stages. That a disease caused by protozoa may be directly transmissible is well shown by the coccidium oviforme.

New Germ Causing Bone Necrosis.—In the pus as well as in the dead bone of a case suffering from extensive necrosis of the bones of the skull and face, and first looked upon as syphilitic and treated with iodide of potassium, with temporary improvement, H. F. HARRIS (C'blatt f. Bact., Parasit. u. Infect., XXXII, No. 10) isolated peculiar diplococci, seated within the pus cells and slightly curved bacilli, in groups of two or three, on human blood serum in the presence of hydrogen and on glucose agar, a limited growth of the bacilli was obtained but there was never the slightest indication of development of the cocci. Under the impression that the germs might possibly develop in some of the lower animals, the pus was injected into mice, guinea-pigs, rabbits and dogs but absolutely no ill-effects followed. Even when the pus was introduced into the cranial bones; no lesions followed; yet from their constant association, there can be no doubt as to their causative relation.

Value of Phenolphthalein in Culture Media.—It has been found by R. ZIELLECZKY (C'blatt f. Bact., Parasit. u. Infect., XXXII., No. 10) that the addition of a weak phenolphthalein solution does not inhibit the growth of bacteria. When larger amounts are added, the colon bacillus will still develop well with the production of less acid; with the typhoid germ however, all growth ceases. A culture medium stained with phenolphthalein will be decolorized earlier and more intensely by the colon than by the typhoid bacillus. The former decolorizes phenolphthalein bouillon in from five to seven hours, and phenolphthalein agar in eight hours. In symbiosis with the typhoid germ, the colon bacillus produces much less acid in a given length of time than its pure culture of the same age. In practice the phenolphthalein medium is to be recommended since its preparation is simpler than other similar media and since the biochemical processes produced by the inoculated bacteria, can be detected sooner.

Antiseptic Value of Colloid Silver.—The literature is full of reports, on the one hand praising the value of collargol in septic conditions, on the other, questioning all efficacy. Hence E. COHN (C'blatt f. Bact., Parasit. u. Infect., XXXII, Nos. 10 and 11) tested the properties of this peculiar body by experiment. In its solution in water as well as serum, the colloid silver was found to distinctly inhibit the growth of bacteria but to possess very slight bactericidal powers. Even large doses injected into the veins did not seem to have untoward after-effects. Autopsy performed in one hour after injection showed that the silver was deposited in most organs. By a chemical examination, no silver could be found in the blood 45 minutes after the injection, hence the tissue-juices are certainly not converted into bactericidal solutions as is stated by some. A number of animals were artificially infected with streptococci, staphylococci, anthrax and cholera germs. Very large doses of colloid silver were then injected and the blood examined bacteriologically at different periods after the injection. In all cases the respective germs were still found present in the blood in large numbers. It follows that the colloid silver has no effect upon sepsis, since the metal is rapidly deposited in almost all the organs.

General Infection with the Bacillus Aerogenes.—The second case in which the bacillus aerogenes capsulatus was found in the circulating blood during life is reported by R. I. COLE (J. Hopk. Hosp. Bull., Oct., 1902). The case was that of a young man who had been run over, and from whose wounds an emphysema extended after 24 hours. Death set in shortly afterwards and an autopsy was not granted. The blood taken shortly before death contained no air-bubbles, yet when injected into a rabbit and the animal killed several minutes later, its body swelled up considerably after it was kept in the incubator over night. The case demonstrates that whatever the possibility that this organism may produce gas bubbles in the blood during life and that it may produce gaseous emboli, it is quite certain that it may exist in the blood without any gas-production.

Hemolysis in the Blood of Cold-blooded Animals.—The following facts are given by H. NOGOUCHI (Univ. of Pa. Med. Bull., Nov., 1902) concerning the interaction of the blood of cold-blooded animals, with reference to hemolysis, agglutination and precipitation: (1) The sera of many cold-blooded animals contain both agglutinins and hemolysins; (2) the sera of some cold-blooded animals contain precipitins; (3) the amount of agglutinin, hemolysin of precipitin in any given serum is no measure of the amount of either of the other principles; (4) the sera of some species, while strikingly agglutinative for certain kinds of corpuscles, may be almost devoid of hemolysins for these or even other kinds of corpuscles. Conversely, the occurrence of active hemolysins in a given serum is likely to be attended with the existence of marked agglutinating properties for some species of corpuscles; (5) from their manner of action, the multiplicity of agglutinins and hemolisins is rendered highly probable; (6) the agglutinins are active upon red and white corpuscles, irrespective of whether the animal yielding them possesses both red and white or only white corpuscles. The hemolysins are erythrolytic and leucocytic if obtained from animals possessing red and white corpuscles; while in certain animals possessing only white corpuscles, hemolysins, in contradistinction to agglutinins are wholly or almost entirely absent. (7) The serum of certain warm-blooded animals—*i.e.*, horse, etc.—exhibits agglutinating power over red corpuscles of some species of cold-blooded animals, and causes slight precipitation with a few kinds at least of sera of these animals. In another article, the same author finds that artificial hemolysins, agglutinins, anti-agglutinins, serum precipitins, aqueous humor precipitins and milk coagulins can be produced through immunization in certain cold-blooded animals. Hemolysins and agglutinins can be produced in animals which do not possess erythrocytes.

Isoagglutinatinins and isohemolysins can be produced in certain species of turtles. The isobodies thus developed have a slight erythrolytic action upon the blood of other, though related, species of turtles. The complements of turtle's blood are rendered inactive by a temperature of 50° C., maintained for 30 minutes. The precipitins and coagulins for aqueous humor and milk, respectively, can be produced in animals which do not possess the corresponding fluids in a strict sense. Those facts demonstrate the widespread distribution of common receptors through the animal kingdom, and extend the chief tenets of Ehrlich's hypothesis to invertebrates and vertebrates among the cold-blooded animals.

Serumtherapy Against the Bacillus of Dysentery.—Shiga's bacillus of dysentery is the cause of acute and other forms of dysentery in tropical and temperate climates, and probably, of a part of the summer diarrheas prevailing in warm countries among infants, according to F. P. GAY (Univ. of Pa. Med. Bull., Nov., 1902). Guinea-pigs are susceptible to experimental infection with the bacillus and react to inoculation in a characteristic manner. Cultivated outside of the body, the bacillus quickly suffers a reduction in virulence for guinea-pigs, but the virulence can readily be increased by successive passages through the bodies of these animals. A uniform degree of virulence in the organism can be established by the passage of the bacillus through these animals, which is independent of its source and which adapts it for the production of vaccines of quite uniform activity. The vaccines consist of suspensions of dysentery bacilli, killed by the addition of trikresol. Their activity undergoes an increase, for a time at least which is coincident with disintegrative changes taking place in the micro-organisms. This vaccine suffices to protect guinea-pigs from a succeeding, multiple, fatal dose of living dysentery bacilli, and to produce in the horse an active immune serum. The latter exhibits marked protective properties in preventing fatal infection with the bacillus or intoxication with its vaccine. While the several dysenteric bacilli used belong to one definite species, minor distinctions were present among them. The bacillus of dysentery resists bacteriolysis by blood-serum to a greater extent than some other members of the colon-typhoid group. A useful serumtherapy of bacillary dysentery and of certain forms of the summer diarrheas of infants, is rendered highly promising.

EYE, EAR, NOSE AND THROAT.

Antral Empyema.—The constant swallowing of fetid pus, such as may occur with empyema of the antrum, may cause a general debility whose etiology is frequently not recognized. Hence J. W. BARRET (Inter. Med. Jour. of Austral., Oct. 20, 1902) points out the importance of nasal examination in doubtful cases. The transillumination test is of considerable value. In normal cases there will be a dark patch below the rim of the orbit and on each lower lid, a light spot. There are, however, cases in which there is no light spot on either side, in some of which there is a double empyema, in most of which there is no empyema at all. Before illuminating, it is best to spray the nose with adrenalin and cocaine, to reduce the volume of the soft parts. If illumination is absent on both sides, the condition of empyema can be determined by examining the nostrils, for the discharge of pus almost invariably causes polypoid thickenings of the mucous membrane. If there is the least doubt, it is well to make an exploratory puncture. A trocar is passed under the fore-part of the inferior turbinated and then pushed outward. Care must be taken to get the point as high as possible. The proceeding is quite painless and usually bloodless. Strangely, some patients do not notice an objectionable smell, but are cured by drilling an opening with an electrical engine over the socket of the first or second molar tooth. The cavity is then syringed with sodium bicarbonate solution and the contents of the antrum sucked out repeatedly during the day. Of the remaining cases, many are troubled only with the discomforts of syringing. If the health is otherwise good, the radical operation through the canine fossa may be performed.

Nature and Treatment of Pterygia.—A new feature in treatment of this frequently observed affection of the cornea and a new view of its cause have been given us by J. O. MCREYNOLDS (Jour. Am. Med. Ass'n, Aug. 9, 1902), in his paper presented to the last meeting of the American Medical Association. In Texas, this writer had found pterygia very common and very aggravated, which he attributes to irritation by wind and dust, especially the latter, becoming embedded in the conjunctiva near the edge of the cornea and setting up fine ulceration resulting in adhesions to cornea. Basing his treatment on this idea of origin, he avoids having a line of union by sutures in the interpalpebral portion of the conjunctiva, by operating so as to cut only along the lower margin of the growth, after dissecting up the "head" and perhaps amputating a portion. The growth is then freed from its subconjunctival attachments and carried beneath that portion of the conjunctiva lying below the incision by means of a loop of suture carried through the head by a needle at each end, emerging apart in the lower fornix, upon which traction is exercised before tying.

Beer-Yeast in Otology.—That beer-yeast, administered by mouth, exercises a specific effect upon pyogenic organisms in suppurative conditions is not to be questioned, writes L. SUNE Y MOLIST (Rev. Cien. Méd. de Barcelona, XXVIII, No. 7, 1902), who has used a special preparation of that substance, compounded from the formula of Dr. Fita, and known as "Cerevisina-Fita," in otitis media, mastoiditis and otitis externa furunculosa, with surprisingly good results; a teaspoonful being given every four hours. The pain subsided and swelling was markedly decreased upon the day following administration of this remedy in a case of mastoiditis; and by the fourth day, the last remnant of inflammation had disappeared. This method of treatment was equally successful in a case of acute suppurative otitis with perforation of the tympanum and involvement of the mastoid cells. Local treatment with antiseptics had been used for three days without avail, when it was decided to essay the effect of cerevisina, which gave immediate relief; and the patient was completely restored to health within less than a week.

THERAPEUTICS.

Toxicity of Sublamin.—Sublamin, an ethylenediamin compound of mercury, has been carefully studied by A. SCHUFTAN (Inaug. Dissert., Berlin, 1902), in order to determine its toxicity as compared with sublimate. The new drug was introduced into rabbits by mouth, subcutaneously and intravenously and death usually occurred in a characteristic way. First, a marked excitement is noticed, soon, however, the head becomes more and more heavy until it can no longer be raised. In a little while the extremities are also paralyzed and the animal topples over. Respiration becomes difficult, clonic and tonic spasms set in and death occurs in general convulsions. Sometimes the muscles of mastication are involved first and most markedly and a bloody diarrhea may develop. By weight, sublamin was found to be less toxic than sublimate, no

matter how given. If, however, it be remembered that 17 parts of sublamin correspond to 10 parts of sublimate, the former proves more active probably because a coagulation of albumin in solution does not take place. Upon this the ready absorption of sublamin also depends. To be certain that the increased toxicity is not due to the ethylenediamin radical, the author also conducted some experiments with this, with negative results.

Aristochin.—Aristochin, a tasteless substitute for quinine, contains, according to H. STURSBERG (Münch. med. Woch., Nov. 11, 1902) as much as 96.1 per cent. of quinine. It appears as a white powder, readily soluble in dilute muriatic acid, and does not precipitate on diluting the solution. After five grains given by mouth upon an empty stomach, quinine can be detected in the urine in half an hour, though the reaction is never so intense as after the same amount of quinine muriate. In order to test the value of the drug, the author employed it in a number of cases of pertussis, and noticed that in all a diminution in the number of attacks took place and that they often appeared in their original frequency when administration was stopped too soon. Gastric disorders did not occur nor were other bad after-effects noticed.

Toxicity of Methyl Alcohol.—The symptoms of acute poisoning of animals by methyl alcohol are in general, similar to those observed after poisoning by ethyl and other alcohols, according to R. HUNT (Qu. Jour. of Inebr., Oct., 1902). The symptoms are, however, produced more slowly and the duration of the intoxication is more prolonged. Even when injected directly into the vein of an animal, the coma does not appear for some little time and it may last for two to four days. In man there is a tendency to explain the long-continued narcosis by the presence of impurities, yet it is probably the methyl alcohol itself which causes it. Other signs are marked fall of body temperature, changes in the alimentary tract, such as hemorrhages leading to bloody diarrhea or to vomiting of bloody matter, convulsive movements of a rhythmic or choreiform character, nystagmus and dilatation of the pupils. There seems to be but little difference in the degree if toxicity of the two alcohols, yet certain organs seem to be more vulnerable to the injurious action of one alcohol than to that of the other, as in the case of the eye with wood alcohol. In subacute and chronic poisoning, however, the animals succumb more rapidly to methyl alcohol, probably, since this is but partially oxidized in the body and leads to the formation of the markedly poisonous formic acid, through the intermediate body, formaldehyde. Since sodium bisulphite, when administered with methyl alcohol, causes a great increase in the excretion of formic acid, it would be interesting to determine if this salt is of any therapeutic value in cases of poisoning. There is no doubt that methyl alcohol is totally unfit for use as a substitute for ethylic alcohol, in any preparation which is to be taken internally.

How and When to Apply Forceps.—After 20 years' experience, I take it to be a good rule to apply forceps, says E. ROSENTHAL (Ann. of Gyn. and Ped., Nov., 1902), if the parts are normal, when no progress is made for three hours after the uterus is open. Waiting only produces a tedious labor. When lacerations occur under the use of the forceps, they would have occurred if forceps were not used. I carry axis-traction forceps, large and small, regular forceps, and a pair that can be locked with a screw. Should the head be above the superior strait, the axis-traction may work wonders; if, however, the head is in the inferior strait, it may require the Simpson small forceps. Never apply forceps in any case whatever without an anesthetic. If forceps slip, or if a reasonable amount of traction fails to deliver the child they should be removed. Forceps should never be used where it is impossible to deliver a living child.

Taking Castor Oil.—A simple method of giving castor oil without any nauseating after-taste is to have the patient wash out the mouth with water as hot as can be borne, then swallow the oil, then again rinse out the mouth with hot water. The first hot water cleans the mouth, makes it hot, and coats it with a layer of water so that the oil has very little chance to stick anywhere. The oil therefore slips down easily. Then hot water is again used, this time to remove any particles of oil that might have adhered to some structure in the mouth. Thus the mouth is left clean and sweet and the patient gets no taste of the oil.

Sulphur Cream for Dandruff.—This preparation, or unguentum petrolati co., writes GEO. T. JACKSON (Trans. Amer. Derm. Ass'n for 1901), is made as follows:

℞ Sodii boratis..... 1.0 (gr. xv).
Sulphur. precip..... 14.0 (℥iiiss).
Aquæ rosæ..... 30.0 (℥i).
Ceræ albæ..... 14.0 (℥iiiss).
Petrolati ..... 75.0 (℥iiss).

Made properly, this should be smooth, white, and free from sulphur odor. Used once or twice a week it keeps the scalp comfortable, does not make the hair too greasy, and checks the dandruff. Drs. Bronson, Bulkley, Corlett, Fordyce and Johnston testified as to the value of this ointment.

Massage.—In the scientific practice of massage, there are a series of manual movements adapted to the result desired according to J. MULHOLLAND (Med. Stand., Dec., 1902). First there is gentle surface stroking which quietly starts the circulation, then friction is begun with firm, deep pressure or rubbing, and then comes deep kneading. The strokings and kneadings are usually in the direction of the venous circulation, and in all the movements the greatest pressure should be made from the periphery toward the heart. A general rub should last from 20 minutes to half an hour, and should be given preferably about bedtime. In orthopedic work a maxim obtains that to tighten a loose joint rub lightly, to loosen a firmly fixed joint rub deep and hard.

Glaucoma.—The myotic most commonly used to reduce intraocular tension, write C. A. WOOD and T. A. WOODRUFF (Med. Stand., Dec., 1902) is the sulphate of eserine, one-half to one grain to the ounce (gm. 0.03-0.06 to cc. 30.0). On account of the pain in the eye and brow, produced by eserin when instilled into the conjunctival sac it is commonly combined with cocaine, which also helps its absorption:

℞ Eserinæ sulph..... gm. 0.03 (gr. ss).
Cocainæ hydrochlor... 0.03 (gr. ss).
Aq. destill.....ad cc. 30. (℥j).
M. Sig: One drop in the eye three times a day.

Stronger solutions may set up conjunctival irritation and ciliary congestion. If the eserine causes too much discomfort use:

℞ Pilocarpinæ nitrat..... gm. 0.25 (gr. iv).
Aq. destill..... ad cc. 30.0 (℥j).

Massage of the eyeball through the closed lids with an ointment of one-tenth to one per cent. of sulphate of eserine is especially useful in reducing the increased tension. The general health should be looked after, and, if indicated, full doses of salicin, sodium salicylate, or colchicum administered, or a visit made to a health resort. Constipation must be relieved, late hours avoided, and the mind kept free from business cares.

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THE PROGNOSTIC AND THERAPEUTIC IMPORTANCE OF ARTERIAL PRESSURE.

TO FOLLOW the literature relating to arterial pressure in man is to read much and to learn little. It is a subject which readily attracts the attention of the clinician but rarely holds it, and the explanation of the evanescent interest which it arouses is not far to seek. It appears at first glance to be a royal road to clinical power, while in reality it is as difficult a path as any along which clinical research has ever made its way, demanding intimate knowledge of physiology and pathology, a passing acquaintance with physiological psychology, a wealth of clinical material and an inexhaustible fund of patience.

The importance of this subject is emphasized anew in a paper by Ch. Jourdin and G. Fischer (*Rev. de Méd.*, Nov. 10, 1902), in which the authors review part of the literature and endeavor to show the prognostic and therapeutic bearings of transient and permanent alterations in arterial pressure. It is interesting to know how to combat successfully a condition of excessive or deficient tension, and this the authors clearly point out. They also present the conclusions of many writers as to some of the conditions leading to vicious circulatory disturbances and as to the circumstances under which therapeutic interference is indicated; but they do not present any preliminary discussion of the nature and the limits of physiological variations in blood-pressure, although without preliminary study the interpretation of the clinical phenomena of arterial tension is scarcely possible. The fact is that the time has not yet arrived for the use of blood-pressure apparatus by the general practitioner, for much of the accessible literature on the subject is evidently the product of hasty and ill-considered research by investigators who, while using such apparatus, neglected to inform themselves as to the conditions of its use.

The common physiological variations in arterial tension are really much greater than is generally supposed. Normal pressure curves differ greatly in individuals according to age, occupation and temperament, being powerfully affected by habits of bodily exercise, of eating and drinking, of thought and emotion. An understanding of the principles of these physiological variations is indispensable in clinical tonometric work. The obverse of muscular exercise is bodily rest, and unaccustomed rest is often the true cause of modifications in blood-pressure attributed in hospital practice to drugs prescribed as vascular sedatives. What is true of physical rest is equally true of mental rest. The prompt result of psychical excitement (not carried to the point of nervous exhaustion) is a rise in arterial tension; and at the other end of the scale of consciousness it is found that normal sleep, the le st active of all mental states, will profoundly depress arterial tone. In a person subjected to a constant succession of psychical stimuli, blood-pressure tends to rise steadily from morning until night. In sane individuals excessive arterial tension and headache go hand in hand. Drugs which are classified as vaso-dilators may fail utterly to give relief in such cases, while sleep obtained by other means may work like magic. We cannot here enter into a discussion of the effects of eating, of mental and physical exhaustion, of posture, of baths, of perspiration; but from what has been said it must be clear that by beginning with the physiology of arterial tension the clinician will be able later to approach its clinical pathology armed with many useful weapons for the control of abnormal states of hypertension and hypotension.

Pathological alterations in blood-pressure may be temporary, as in infectious diseases, pleurisy with effusion, anemia, icterus, etc., or they may be lasting, when due to anatomical changes in the

circulatory and eliminative organs, such as arterio-sclerosis, valvular lesions, degeneration of the myocardium, interstitial nephritis. In the former instance a study of arterial tension has a limited prognostic value; in the latter such observations are of value both in diagnosis and prognosis and may enable the clinician to foretell an acute exacerbation of a chronic disease.

In the interpretation of states of blood-pressure for purposes of prognosis a starting-point is furnished by a knowledge of the limits of tension, high and low, which are consistent with life. It should be borne in mind that the expression of these limits will depend upon the instrument used. Persistent high pressure is a grave condition, in which the prognosis depends to some extent on the cause. The real degree and significance of high arterial tension cannot be ascertained by a single daily observation any more than one can gain by such means a knowledge of fever; the remissions must be recorded and considered. But profound hypotension, however transient, is always a very serious matter, and there appears to be a limit which, if once passed, even for a moment in the course of a depressing intoxication, or in shock from any cause, is the inevitable forerunner of a speedy death. In these latter cases the restoration of the pulse to its normal state would mislead the ordinary observer and the true prognosis could be supplied only by knowing what was the condition of arterial tone during the transient period of shock.

Rougier tells us that in pneumonia arterial tension is a valuable prognostic sign. In ordinary cases blood-pressure falls during convalescence, while in cases which terminated fatally he observed a premature depression of arterial tone during the acute period of the disease. But while premature hypotension is regarded as a bad sign, seriousness attaches also to marked hypertension in this disease, especially if the patient be gouty, for in such cases the weakened heart must struggle against a three-headed enemy—hypertension in the portal, the pulmonary and the general arterial systems. In typhoid fever diminished arterial tension is the rule; marked elevations or excessive depressions of tension are considered forerunners of serious complications, but are, after all, less useful in prognosis in this disease than are variations in the frequency of the pulse. In secondary pleurisy high tension signifies nephritis, low tension tuberculosis. In influenza blood-pressure is said to be greatly reduced; but the difficulty in this condition, and indeed in all fevers, is that in order to know exactly to what extent arterial tone has been altered one would be obliged to have a record of the patient's normal or pre-febrile pressure curve. At the present time it is wise not to attach any prognostic value to tonometric readings in neurasthenia, epilepsy or mental diseases.

We can only name here some of the therapeutic measures for enhancing or lowering arterial tone. Among the former are the use of digitalis, strychnine, camphor, caffeine, subcutaneous injections of salt solution. In order to diminish tension the therapeutist will endeavor first of all to remove the cause of the abnormal state. In edema of the lungs, uremia and eclampsia immediate relief may be obtained by phlebotomy. Dyspnea or neuralgia associated with high tension may be relieved by inhalations of amyl-nitrite. Chronic conditions involving hypertension can be favorably influenced by diuretics, diaphoretics, saline purgatives, calomel or a milk diet.

THE PROPHYLAXIS OF VENEREAL DISEASE.

A VERY valuable practical suggestion calculated to limit the spread of venereal diseases to a marked degree, and well worthy of general notice, was made at the last meeting of the Harvard Medical Society of New York City, held November 22, see Society Proceedings, MEDICAL NEWS, this week, page 42. Dr. Follen Cabot presented two printed slips, one of which is to be given to each patient suffering from syphilis or gonorrhea, according to his ailment. These slips tell in plain language, readily intelligible even to those of limited understanding, all that it is important for a patient suffering from a venereal disease to know, if he is expected to take proper precautions, in order not to spread the disease by carelessness, or prove a source of danger to himself or others. These printed slips have already been adopted at the New York Presbyterian Hospital and one of them is to be handed to every venereal patient who comes under treatment at the institution. At the meeting of the Harvard Medical Society it was suggested that this method of distributing information should be called to the attention of the New York City Board of Health, with the idea of having either these printed slips or something similar for distribution to the venereal patients of the city's charitable institutions.

The idea is an excellent one and is so simple and practical that it deserves to be widely put

in practice. Even family practitioners might well keep a supply of these slips on hand, since they enable them to give almost indispensable information without delay and without the possibility of forgetting some important point that may prove a source of danger to the patient himself or to friends. Explicit directions like these are needed in every case and the physician has not always the time to go into details and, besides, the patient readily forgets and needs to have something that will frequently remind him of necessary precautions. Far from resenting, patients will welcome such directions, and the fact that the directions are printed gives them an added sanction to many minds and helps to remove any lingering suspicion there may be, that the physician is exaggerating the seriousness of his illness for personal reasons.

One of the most serious aspects of the present state of the question of the limitation of venereal diseases is the lack of appreciation, on the part of the public generally, of the significance of these serious diseases. Gonorrhea is apt to be considered as a passing ailment that most men go through at least once. Only by accident and that rarely is this disease supposed to have any serious consequences. Syphilis is more mysterious and more feared, but its true nature is scarcely more than suspected. That gonorrhea may persist almost without symptoms for years and prove a source of infection of the wife, or be the most frequent cause of ophthalmia neonatorum with consequent blindness is not realized. That syphilis is the great cause of early apoplexy and the most fruitful soil for the development of such serious nervous diseases as locomotor ataxia and general paralysis is only just beginning to be generally known.

Much of this state of popular misapprehension as to venereal diseases is due to the fact that medical men have themselves only come to a proper appreciation of them in quite recent years. Our knowledge has made wonderful strides in these subjects in the last 25 years and we should make special efforts that popular knowledge shall not lag far behind scientific progress, since the subject is too important. Hence the advisability of taking up at once a scheme like this that promises to be widely informing in a very simple ethical way. There is, perhaps, one suggestion as to an addition to Dr. Cabot's directions, as printed, that might be made with propriety. Patients should be warned that there are sometimes nervous sequels of syphilis. These are not frequent, much less invariable, but syphilitics should be enjoined not to neglect putting themselves under the care of a physician should any nervous symptoms begin to be manifest. Besides they should be told of the necessity for them to tell their medical attendant, in such cases, of their having had syphilis. In this way undoubtedly dangerous delays in treatment and misunderstandings will be avoided, while lives will be saved by the promptness with which antisyphilitic remedies can be administered.

THE X-RAYS FOR MALIGNANT DISEASE.

THE recent discussion of the therapeutics of the X-rays in malignant disease, at the meeting of the New York State Medical Association (see Society Proceedings, MEDICAL NEWS, Nov. 1, 1902), presents some of the limitations of their use as well as the helpful suggestions that experience has brought with it. It is clear that in the present state of our knowledge the only affections for which there is proper justification for the employment of the X-rays are superficial cutaneous cancer and inoperable tumors or recurrences. To suggest the use of the X-rays for primary cancer of the breast, for instance, as a method of treatment advisable early in the case is to expose the patient to serious risk without adequate hope of securing a cessation or retrogression in the growth of the tumor which may and in all probability will proceed to give lymphatic metastasis during the precious time expended on this method of treatment. These will surely complicate the further course of the case and may make radical operation by the knife ineffective.

There seems undoubtedly to be a good field for the employment of the X-rays, as a prophylactic measure after surgery has accomplished all it can. Frequent exposures to the X-rays will cause retrogression of many recurrent cancer nodules, such as make their appearance along the line of scars or even in more or less distinct, if only superficial, lymphatic glands. If in anticipation of such recurrences and metastases, X-ray treatment be instituted, there is good reason to think that deep tissue involvements may be prevented and lives saved. For while recurrences usually take place in the superficial parts they may be much deeper and spread beyond effective treatment before suspicion of their presence is aroused. This method of treatment may also be made to apply to uterine cancers after panhysterectomy, for by specially constructed tubes, ex-

posures may be made by which the X-rays are allowed to act only upon pathological tissues. This latter suggestion has as yet been very little tried, but it presents elements of hope in what are so often practically hopeless cases that it seems well worth putting to the test of extensive experience.

As for cutaneous cancer and especially the form known as rodent ulcer the X-rays seems the best, easiest, and most effective method of treatment yet introduced. This is saying much for the systematization of the employment of arsenic pastes and has given excellent results. The cosmetic results of X-ray cures are especially satisfactory. It has been suggested that certain combinations of remedies may prove more effective than any single one in some of the more obstinate of these cases. For rodent ulcers with rolled-up, thickened, indurated edges, Dr. Kinnicut said that English authorities have found an alteration of treatment by Finsen rays and X-rays more effective than the use of either agent alone. Very strong light must be employed and the parts on which it is expected to act must be rendered bloodless by firm pressure against the lens of the Finsen lamp.

As might be expected, the technic of the use of X-rays is not yet perfected. One of the most serious difficulties results from changes in the vacuum of tubes that sometimes give the rays increased burning power. The X-rays are not well understood, but it is generally held that they are not a form of electricity but are more closely related to light. Electrical energy is the most available means for their production.

It must be borne in mind that the results obtained by the use of the X-rays for malignant disease have not endured sufficiently long to give any assurance of permanency of cure. In a certain number of cases the disappearance of tumors, especially of secondary recurrent nodules of carcinoma of the breast, has been followed by subsequent symptoms from internal metastases and even by recurrences in the scar. A certain number of patients, with regard to whose definite cure there are notices in literature, are now dead from such recurrences. With regard to rapidly growing sarcomata the X-rays are especially ineffective, yet they may at times retard very much the progress of the case. For the slower varieties they seem to encourage breaking down, and this is apt to be followed by decided improvement, or even what appears to be radical cure.

Evidently much remains to be learned about methods of application and ultimate results of X-ray treatment, yet the prospect is most encouraging. When it is realized that a symposium, such as that presented by the New York State Medical Association, on X-rays in cancer would have been absolutely impossible only a year ago because of lack of experience, it can be seen how much has been accomplished in a few months. Over-enthusiasm in the reporting of results is especially to be deprecated at this stage in the evolution of our knowledge of the subject. Obstinate cases and failures must be included in reports or there will eventually be as sad disappointment in this matter, perhaps, as in the use of certain forms of electricity. In at least one reported case, a malignant neoplasm developed with fatal results in the scar of an X-ray burn. There is need, therefore, of extreme care in the use of the new method, and only the control experiences of many conservative observers will supply us with suitable data for an exact definition of the indications and limitations of X-ray treatment.

ECHOES AND NEWS.

NEW YORK.

Professor Lorenz at Cornell.—The Professor met at the Cornell University Medical College on the afternoon of Thursday, Dec. 18, the most representative body of medical men he had as yet encountered. Nearly five hundred, among whom were Dr. Stimson, Dr. Sayre, Dr. Gibney, Dr. Polk, Dr. Keyes, Dr. Willy Meyer, Dr. Gilman Thompson, and others well known in the profession watched the Professor with great interest. He reduced three congenital dislocations of the hip and overcame by his manipulative method a very severe case of talipes equino-varus. Even such experienced surgeons as Dr. Stimson and Dr. Keyes remarked upon the comparative innocuousness of what appeared to be extremely violent treatment. The plaster splint applied to the hip-joint was fitted with an ingenious appliance new to most of those present for keeping the child clean. Next to the skin was applied the ordinary cotton tubular shirting enclosing the pelvis, having beneath it a broad cotton bandage with the ends protruding above and below. A large amount of cotton was superimposed and over this a very heavy plaster splint, beginning just below the knee and including the pelvis. This fixed the leg in the usual position, with the thigh at a right angle to the pelvis and in extreme abduction. The broad cotton bandage with the protruding ends could now be pulled up and down underneath all this to give the child a "dry wash." None of the surgeons had used such an appliance and commented on its cleverness. In the splints, which were left several months in place, it would prevent the undesirable itching so often complained of.

The case of clubfoot was an example of the severest form of the deformity. The soles pointed directly inwards and the anterior portion of the foot slightly upwards, so that walking was accomplished

by stepping on the callous just below and in front of the external malleolus. This case was handled with great apparent roughness and yet evidently with extreme skill, as in the course of 15 or 20 minutes the foot was in a perfectly normal shape. It was accomplished by manipulation by the Professor, but his assistant, working on the other foot, used a wooden triangular rest having a blunt apex, against which, as a fulcrum, he pushed the outer part of the foot in producing abduction and dorsal flexion. The Professor, using his hands alone in pressing the plantar structures, obtained the desired results without any appreciable injury, while his assistant, attempting to keep up with the rapidity of his chief and using the wooden fulcrum, ruptured the skin below the internal malleolus at the point of greatest tension. To even the experienced physicians in the audience it seemed that there must be a great laceration of soft parts, and yet there was no evidence of it. The manipulations continued until the foot could be adducted and everted almost as much as it had been adducted and inverted. A plentiful amount of padding was applied and the foot was encased in the plaster bandage at least half an inch thick. It projected and enclosed the toes, but before it had thoroughly dried was cut away enough on the top to expose the dorsal aspect of the tips of the toes. A fenestrum was then cut about half an inch wide extending from the base of the third and fourth metatarsals to just above the anterior surface of the leg between the malleoli. Through this fenestrum the cotton padding was removed and the skin exposed, then loose cotton was stuffed in the aperture and a cotton bandage applied snugly to make the pressure even where the splint had been cut out. This was to allow for the swelling which would occur and to permit inspection and thus give warning if the splint had to be removed. It is interesting to note that the swelling did occur in this child's foot and it was so severe that the whole splint had to be removed at St. Luke's Hospital on the following day, but no untoward results followed.

The clinic was extremely instructive and very interesting and very much appreciated. Only the Seniors of the Cornell University Medical College were admitted, as the Professor requested that the limited space in the Hall be reserved for the great numbers of the distinguished physicians who wished to observe his methods.

Obituary.—Dr. Frederick L. Brady, who was a member of Troop B of Roosevelt's Rough Riders during the Spanish-American war, died in St. Luke's Hospital from typhoid fever late Wednesday night. Dr. Brady was thirty years old, a son of the late Luther B. Brady, and a brother of Mrs. Orlando J. Smith of Dobbs Ferry. He was a graduate of the College of Physicians and Surgeons of this city. During the Spanish-American war, as a member of the Rough Riders, he was in the engagement at Las Guasimas, the battle of San Juan Hill, and the siege of Santiago.

PHILADELPHIA.

Memorial of Dr. Packard.—A committee has been formed to secure funds for the painting of a portrait of the late Dr. Frederick A. Packard, the portrait to be presented to the College of Physicians. The committee is headed by Dr. H. C. Wood, chairman, and Dr. Alfred Stengel, secretary.

Change in Asylum Methods Advocated.—The legislative commission appointed by the State to inquire into the condition of the insane in State institutions will urge the next legislature to place all such institutions under the control of a State lunacy commission as is now done in New York. Other changes in the methods of caring for these wards of the state will also be recommended.

A Fatal Case of Anthracosis.—This case was reported at the Pathological Society, Dec. 18, by Dr. T. S. Githens. The patient was a man of 27, a barber by occupation, this being an interesting point in the case. He had had syphilis five years before. Both parents had died of disease of the lungs. The man had been subject to cough and nightsweats for a year. The diagnosis of tuberculosis was made by several physicians in spite of the fact that the sputum was negative. The patient finally died during an attack of dyspnea. Autopsy showed a chronic plastic pleurisy and a great amount of pigment, extra- and intra-cellular, in the lungs and the surrounding glands. The lungs sunk in water. No tubercles were found. There were fibroid changes in the lungs. They contained one-fifth, by weight, of pigment.

Vaccination Campaign to Be Repeated.—While no smallpox epidemic is feared this winter, the authorities are taking precautions to avoid its possible occurrence. Patrolmen will be furnished with blank forms with which to make a canvass of each house to determine the number of unvaccinated persons present. Vaccine physicians will then call and vaccinate these persons free of charge. Twenty-five new cases of smallpox were reported for the week ending Dec. 27.

Almshouse Site Probably Chosen.—It now appears that the site for the new almshouse and the insane department of the Philadelphia Hospital has been finally chosen. A commission of 25 representative physicians, many of them being visiting physicians of the Philadelphia Hospital, inspected on Dec. 28 the unoccupied portions of the grounds of the House of Correction at Holmesburg and unanimously passed a resolution endorsing the site and recommending its final selection. It is understood that Mayor Ashbridge will send a message to Councils at their next session, recommending that the Bureau of Charities and Correction be authorized to relocate the almshouse and insane department on this site. As the city now owns this property, no appropriation for purchase of land is necessary. Nearly 150 acres of high, healthy ground, easily accessible by railroad, trolley, or water are available. The city now has $300,000 that could be applied at once to the erection of new buildings on the proposed site.

Sanatorium to Be Extended.—The Free Hospital for Poor Consumptives will ask the Pennsylvania Legislature during the coming session to pass a bill appropriating $300,000 for the enlargement and improvement of the sanatorium at White Haven. If this sum is obtained it will place Pennsylvania ahead of all other states in the care of consumptive poor. This will also probably make possible the establishment of other sanatoria in the state. With this extension, the Pennsylvania Society for the Prevention of Tuberculosis will endeavor to organize the entire State into a powerful system, with the Free Hospital as a center. The membership is now between 700 and 800. It is hoped that the number may be increased to 10,000. Auxiliary committees of women are to be formed in all the cities and towns of the State.

American and European Methods of Treating Tuberculosis Compared.—Dr. Lawrence F. Flick, president of the Free Hospital, has just returned from a trip to England and the continent, made for the purpose of studying the means employed in combat-

ing tuberculosis. He found that the serum treatment is employed in some sanatoria in Europe, but believes that in cases in which it might be used, equally good results are obtained here by our outdoor treatment and forced feeding. He did not see anywhere in his journey better results than those obtained at White Haven. The system of feeding used there he considers to be better than any that is employed in Europe. The American system of treatment is also more economical. The cost of building institutions is less here, being about $500 per bed, as compared with a cost of from $700 to $1,000 per bed in Germany, the appointments being equally good. The cost of maintenance there ranges from $7 to $10 per week, while at White Haven last year it averaged only $5.42 per week.

Care of Indigent Poor and the Dying.—Dr. Flick is thus further quoted: "Our movement is better than that of any country in Europe in that we devote ourselves to helping the indigent poor. In the European institutions the poorest patients are not accepted, because it is required that all cases treated shall be paid. They are looking particularly after the working classes, more than after the miserable creatures who are unable to help themselves. Another part of our work I did not see paralleled in Europe, and I think it is of more value than anything they undertake there. We have made provision for the penniless dying consumptives. They are really the source of greatest danger, because in its last stages the disease is most contagious. The European institutions have restricted themselves thus far to incipient cases. This question of caring for indigent dying consumptives is being agitated there at the present time, but except in France and England it has not yet been taken up in a practical sense. The city of New York is doing the best scientific work in the whole world in combating tuberculosis. The newspapers in Philadelphia have done more than any other agency to help this great and humane cause."

Perforation in Typhoid Fever.—At the meeting of the Philadelphia County Medical Society held Dec. 23, Drs. J. H. Lloyd and T. L. Coley reported "Two cases of Typhoid Fever with inconclusive symptoms; Perforation." The first patient was a butcher, aged fifty-two years, who, on the thirteenth day of the disease, was seized with vomiting and severe epigastric pain after taking milk. The temperature varied from 100° to 103° and the leukocyte count from 7,200 to 8,000. Not until 23 hours after the onset of pain did abdominal rigidity become marked. The excretion of urine diminished one-half after the onset of pain. The patient finally died and autopsy revealed a perforation nine inches from the ileocecal valve. This case was one in which the fever had not been severe, and there had been only slight diarrhea and tympanites. At the time of the onset of pain there was no drop in temperature, and there was no change in the pulse and respiration for 48 hours. The second case was that of a laborer of thirty-six, admitted on the twenty-first day of the disease. He had vomiting, some tympanites, and no local pain, but a general soreness. Three hours after the onset of pain the temperature was 103° F. The leukocyte count was 5,700. Operation was performed the second day and revealed four perforations. Death followed in 24 hours.

Surgical Treatment of Typhoid Perforation.—Dr. J. H. Hutchinson, who operated on the second case reported, said he believed that it was impossible to diagnose the majority of cases of perforation, yet if the surgeon waits until the diagnosis is clear it is generally too late to operate. He has studied ten cases of perforation and only two were of the fulminating type from the start, with clear symptoms of perforation. All the cases had pain, generally most marked at the onset, but in some progressive; the abdomen was not always distended, this condition being absent in some cases where the abdominal cavity contained a quart of feces. The leukocyte count was of some value, one case showing 11,000. Two cases had a hemorrhage with or following the pain. Operation should be performed in doubtful cases. The peritoneal cavity should be washed with salt solution at the time of, and following, the operation. The majority of deaths after operation are due to the disease and not to operation itself. Improvement after operation has been noted even in patients that afterward died. Dr. J. B. Roberts, who saw both of the cases above noted, made some remarks on "Two Erroneous Surgical Decisions in Perforation in Typhoid Fever." His refusal to operate was based partly on the fact that the evidences of perforation were at first inconclusive and partly because sutures are not apt to hold after 24 hours have elapsed. The first case was one having few characteristic symptoms. Possibly the increased rapidity of respiration was not sufficiently valued. They rose from 28 to 36. In the second case, too little attention was paid to the abrupt rise of respiration and pulse with the onset of pain. In these cases too much importance is apt to be given to abdominal examination and not enough to the general symptoms. It is more easy for those who have seen a patient during the course of the disease to make the diagnosis of perforation, as the diagnosis often depends on the change in the symptoms rather than on any typical sign of the perforation itself. Leukocytosis is of no great importance in diagnosing perforation in typhoid fever, although a relative increase in the polynuclear type is of value. Dr. Roberts' conclusions are (1) The occurrence of pain, with an increase in pulse and respiration, is of great value in the diagnosis of perforation in typhoid fever; (2) leukocytosis is of value only as above stated; (3) a decided fall in temperature is not a necessary accompaniment of perforation.

Obituary: Dr. Willits.—Dr. Mary Willits, first assistant physician to the female department of the Norristown Insane Asylum, died recently of cancer. Dr. Willits had been connected with the Asylum for ten years. She is said to have been the first woman admitted to membership in the Philadelphia County Medical Society, in 1888. She was for some time an instructor in the Woman's Medical College.

CHICAGO.

Eye Affections as Early or Characteristic Evidence of Nervous Diseases.—Dr. Henry Gradle discussed this subject. Paralysis of the eye muscles, if not of peripheral origin, may indicate tabes or basal syphilis. Progressive multiple palsies show involvement of the nuclei of the motor nerves of the eye. Acquired nystagmus may be part of disseminate sclerosis, Friedreich's hereditary ataxia, or cerebellar disease. Pupillary inequalities often precede general paresis and other degenerative forms of insanity. Paralysis of the iris sphincter may be the only sign of cerebral syphilis. The importance of the narrow rigid pupil as an early sign of tabes or general paresis is well known. Optic atrophy not rarely precedes all other manifestations of tabes. Choked disc aids materially in the diagnosis of brain tumors, while optic neuritis without edema may point

to inflammatory cranial affections. The diagnosis of hysterical blindness depends mainly on the presence of normal pupillary reaction. The paper concluded with the inferences to be drawn from a study of hemianopsia.

The Most Prevalent Eye Diseases Among Children.—Dr. F. C. Hotz read a paper on this subject. He said that certain diseases of the eye are more frequent in children than in adults. In these, malnutrition plays a conspicuous rôle. The principal ocular affections coming under this head are: (1) Ulcerative blepharitis; (2) Phlyctenular keratitis and conjunctivitis; (3) Interstitial keratitis, due in from 50 to 80 per cent. of cases to inherited syphilis, and affecting persons between the ages of five and twenty years. The disease is not the outcome of actual specific lesions in the eye, but stands in close relation to the debilitated state of the system existing in victims of inherited syphilis.

Some Eye Disorders in Children Influenced by Malnutrition, Diathesis and Dyscrasia.—Dr. Alfred C. Cotton read a paper on this subject, saying that of the eye disorders in infancy and childhood, etiologically considered, the two extremes are perhaps best represented by ophthalmia neonatorum, on the one hand, and phlyctenular conjunctivitis, on the other. In the former we have an acute fulminant process due to specific infectious germs which produce, with marked regularity, typical inflammation on any conjunctiva, regardless of conditions of general nutrition, diathesis or dyscrasia. In the latter, we have a destructive lesion of the conjunctiva or cornea, with no etiological micro-organisms, invariably attacking only the eyes of subjects of malnutrition, or the so-called strumous type. The importance of ophthalmia of the new-born is so generally understood as to require no more than passing notice. Whether the family physician adopts the Credé method as a regular routine practice, or is content with the cleansing of the eyes of the new-born with boric acid, saline solution or sterile water, he should not forget that the responsibility for protection from the effects of acute purulent ophthalmia rests solely upon him. Two general principles must be observed; first, to cleanse by irrigation the conjunctival sac from purulent accumulations as frequently as the individual case may require, and, second, the maintenance of hygiene, including rest and nutrition. The intractability of acute local inflammation is increased by depressed constitutional condition and innutrition is sufficient to make rest and nourishment of supreme importance. Of the many local remedies employed in purulent ophthalmia, each has proved efficacious in the hands of different practitioners. Protargol, in 10 to 20 per cent. solution, has proved highly satisfactory, both for prophylaxis and also as a corrective application to the inflamed mucosa during the height of the attack. Phlyctenular affections belong distinctively to the period of late infancy and early childhood. This is one of the local manifestations of the strumous diathesis.

Eruptive Fevers of Childhood.—Closely allied to phlyctenular affections is conjunctivitis following the eruptive fevers of childhood. As a rule, in all these cases the old routine application of astringents should be discouraged. Two other forms of conjunctivitis require prompt constitutional treatment, namely, the croupous and the diphtheritic types. The first is rarely seen except as an accompaniment of depraved constitutional conditions. The treatment should be locally palliative, constitutionally nutritive and hygienic.

Syphilis.—Of the other dyscrasias upon which serious eye lesions are dependent, syphilis is undoubtedly the most common. From the viewpoint of the general practitioner, the ophthalmic lesion most in evidence in children with inherited syphilis is interstitial keratitis. Regardless of the value of mercurials in controlling syphilitic manifestations in later life, the essayist says there is abundant clinical evidence in favor of its exhibition, preferably by inunction, in children. This should be accompanied by the best known tonic and supportive measures.

Symphyseotomy.—At a recent meeting of the Chicago Gynecological Society, Dr. M. L. Harris reported a case af symphyseotomy. The patient was thirty-five years of age. Normal menstrual history; general health good; married April 25, 1900. First confinement Jan. 26, 1901. Prolapsed cord; dead baby. Craniotomy was necessary in order to effect delivery. Patient recovered. She became pregnant for the second time in December, 1901. As the time for confinement approached, she entered the Passavant Hospital, under the service of Dr. Hooper. Examination showed abdomen firm, not pendulous. Position of fetus, L. O. transverse; movements active. Measurements: Pelvis and spine, 27 cm.; crests, 28.5 cm.; Bis. trochanteric, 31 cm.; Baudelocque, 16.8 cm.; symphysis narrow. Conjugata vera, true, 8 cm.; false, 7.5 cm. Sacrum: Double promontory. Sacrum sharply curved; pelvic type; generally contracted, rachitic. Laceration of perineum of first degree; estimated weight of fetus seven to eight pounds; bi-parietal estimated at 8.5 cm.; occipito-frontalis estimated at 10.5 cm. In view of the patient's first labor and craniotomy having been done, and considering the measurements that were made of the pelvis, operation was necessary to effect delivery of a living child, and as the essayist was consulted concerning some operative procedure, he thought it a proper case for symphyseotomy, advised that operation, and it was done in accordance with a method described by the author several years ago, in an inaugural thesis presented before the society.

Life Insurance Urinalysis, Its Importance, Its Present Extent, and How Its Scope Can Best Be Broadened.—Dr. J. Allen Patton read a paper on this subject before a recent meeting of the Chicago Medical Examiners' Association in which he drew the following conclusions: (1) There should be no question of the urine's identity. (2) Very important to have urine passed at time of the examination, and time with reference to meals stated. (3) Note any difficulty of urination, and the physical characters of the urine, when first passed, and the changes, if any, after it has cooled. (4) Test the reaction of the urine carefully. (5) Determine the specific gravity with a reliable urinometer, or preferably with a balance, if one is convenient. (6) Apply tests for albumin and sugar carefully, allowing proper time for the reaction to develop, and exercising care in regard to the fallacies of the tests used. (7) Any abnormality of first sample obtained should be substantiated by examination of a second example. (8) Microscopical examination by examiners properly equipped for that work is the best method of determining the character of most abnormalities of the urine. (9) This additional work would require an additional fee guaranteed by the company, but to be paid by the applicant, if accepted, the work not to be done unless the applicant consents to it.

Arterio-Sclerosis of Retina and Choroid.—Dr. Charles H. Beard read this paper: Among other things, he stated that the first of the frequently noticed results of blood vessel disease in the retina was unwonted meandering in their courses. This applies not only to the lateral planes, but to the vertical ones as well. They rise and they dip. These flexions toward and away from the spectator seem to be mainly on the part of the larger twigs. This phenomenon is strikingly shown in the more advanced cases at the points where veins and

arteries cross. The artery, being more rigid, seems not so much to leap over the vein, as the latter to depress itself. Another early and conspicuous sign of arterio-sclerosis is white lines, which accompany the large trunks from the lamina cribrosa for varying distances along their courses. This is thought to be pathognomonic of senile arterio-sclerosis and is to be differentiated from similar appearances which are the result of thickening of the adventitia, and obliteration of the perivascular lymph spaces, which often follow neuro-retinitis. In the latter the caliber of the vessels is not necessarily narrowed, as it is in arterio-sclerosis. The condition may also be simulated in another way by the rich framework of connective tissue which often normally surrounds the vessels in this vicinity and radiates from the disc. Added to the deception may also be physiological tortuosity of the vessels. As the process waxes and spreads come other changes. There occur infiltrations of the retinæ which are not necessarily visible, and these in turn become ingrowths which show themselves as narrowing of the blood column. These growths undergo various forms of degeneration, at one time revealing themselves as small, yellowish patches on the vessel, or as tiny white scales. Haab associates the last with syphilis. Hemorrhages, large and small, are apt to occur in all stages, and one can usually distinguish between the old, the more recent and the fresh ones by their color and general appearance. The larger hemorrhages are prone to originate at the vessel crossings or where large branches are given off. Later the clot may become organized and assume the look of white, fluffy cotton, connective tissue new growths, stained in spots with dull or bright blood. At a given period in arterio-sclerosis of the retina, the fundus may show all the features that have been associated with albuminuric neuro-retinitis, and the outcome may be optic atrophy. A not infrequent ophthalmoscopic picture in these cases of blood vessel disease of the retina is that which has been named embolism of the central retinal artery. With regard to the eye itself in cases of arterio-sclerosis, the utmost discretion should be exercised in the use of mydriatics, and operations upon that organ should be undertaken only after the most careful general preparation. By these means we may be spared participation in grave disasters, such as intra-ocular hemorrhages, which produce glaucoma and expulsion of the contents of the globe after cataract extraction.

CANADA.

Annual Meeting, National Sanitarium Association.—On the afternoon of Dec. 20 the annual meeting of the Board of Trustees of the National Sanitarium Association was held in Toronto, with Sir William Meredith in the chair. Dr. J. H. Elliott, physician-in-charge of the Muskoka Cottage Sanitorium at Gravenhurst, read the annual medical report, which showed that the official year which closed on Sept. 30, was the most successful year in the history of the institution, which has now been running five years. During that time 612 patients have been treated, and Dr. Elliott reported that during the past year 85 per cent. had apparently been cured or the disease arrested, while but 10 per cent. failed to improve. Regarding the Free Hospital for Consumptives on the same grounds, the secretary reported that 90 had been maintained during the first five months after it was opened. Of the 90 patients 50 came from Toronto and the other 40 from other parts of Ontario and the Dominion. An important part of the secretary's report is that which contains the announcement that a third sanitarium under the auspices of the Association, is shortly to be erected in Toronto. A very desirable building site is already owned. The sum of $25,000 has been promised for the erection of buildings on this site by a leading citizen of Toronto. The programme of the Association extends even beyond this, and a fourth institution is under consideration to be established on the Pacific Coast.

Dinner to Dr. Casey A. Wood, Chicago.—One evening last week, the professors and lecturers of Bishop's College Medical Faculty, Montreal, dined Dr. Casey A. Wood of Chicago at the Windsor Hotel. Dr. Wood, who is a graduate of Bishop's, was formerly professor of chemistry and later professor of pathology in his alma mater.

Appointment.—Dr. G. A. Charlton, Montreal, a graduate of McGill University, has been appointed resident physician to the Ottawa Isolation Hospital. Dr. Charlton, up to a short time ago, held a fellowship at McGill, under Professor Adami, and lately conducted a series of experiments regarding the serum treatment of scarlet fever. He is at present trying to discover a bacillus for scarlet fever, or confirming the findings of Class.

New Members of the Royal College of Surgeons of England.—The following Canadians have recently been admitted by examination to membership in the Royal College of Surgeons, England: Dr. Charles C. Bell, Toronto; Dr. William A. Creswell, Toronto; Dr. Robert J. Dwyer, Toronto; Dr. William A. Fish, Toronto; Dr. Joseph F. McKee, Toronto; Dr. Wallace A. Scott, Toronto; and Dr. William E. Struthers, Toronto.

The Canadian Hospital Tent has been adopted by the Imperial Government. It is the joint invention of Surgeon-General Neilson and a citizen of Ottawa, Ont. Lord Kitchener saw the tent in South Africa and was very much delighted with it.

Obituary.—The sudden death of Dr. William Stenning Harding took place on the evening of Dec. 19, at St. John, N. B. Dr. Harding was one of the oldest medical men in the province of New Brunswick. He was born at St. John in 1814, and studied medicine at Edinburgh, where he was graduated in 1836. He commenced practice in his native city, where he has enjoyed an extensive practice up to 1895, when he retired from active work.

CORRESPONDENCE.

OUR PARIS LETTER.

(From Our Special Correspondent.)

PARIS, December 12.

HOSPITAL CHARGES IN FRANCE—GASTRO-ENTEROSTOMY BY C. MONPROFIT OF ANGERS, HARTMANN OF PARIS, AND ROUX OF LAUSANNE—THE EARLY OPERATION IN APPENDICITIS—TREATMENT OF TETANUS.

THE question as to whether some hospital patients should pay for medical services rendered them, is one which has been freely discussed in France during the last two or three years. The recent law which obliged employers to pay for the treatment required by employes who had suffered injury in their service is in some degree responsible for this. To evade medical fees workmen and artisans were taken to the nearest hospital instead of calling their own physician. A meeting of French surgeons was held recently to discuss this, and Dr. Reynes of Marseilles proposed that the following measures should be carried out: The number of paying patients to be limited, their dues to be equal to the amount spent for their care, and the physicians and surgeons to receive a certain compensation for their

services and the operations they carry out. Certain hospitals in the French provinces, such as those at Nevers, Lillebonne, Perpignan, Vesoul, Cannes and Montpelier, have changed their regulations, so that patients who can afford to do so are obliged to pay the physician of the hospital. A delegation was sent to Dr. Combes, the Minister of the Interior. The usual charge per day in the surgical wards of the Paris hospitals is five francs, and yet, strange to say, the employers, who send their workmen into these wards, are only asked two francs 50 centimes per day.

At the recent Congress of Surgery, held in Paris, the results of gastro-enterostomy were discussed by Monprofit of Angers, Hartmann of Paris, and Roux of Lausanne. Monprofit has performed 101 gastro-enterostomies, 15 by the anterior method of Woelfler, 75 by the posterior method of von Hacker, and 13 by the Y process of Roux. The posterior method would seem to be much better indicated. As for Roux' method it is the most perfect, but is more difficult and takes longer, and should therefore not be used when the patient is weak. Roux' operation lasts from 50 to 60 minutes, whereas von Hacker's only lasts half an hour. Dr. Monprofit only used linen thread for his sutures. Dr. Hartmann has performed this operation with a general mortality of 16.5 per cent. The number of fatal cases has, however, decreased since 1900, he having only lost four patients out of 37, or a mortality of 10.5 per cent. The results would be still better, if the patients were sent sooner to the surgeon, and Dr. Hartmann divides his patients into two categories: (1) Those sent by Professor Hayem and Dr. Loupault, who understand diseases of the stomach, and (2) those sent by other physicians. In the first division, there is one death out of 36 operations, in the second nine deaths out of 24 operations. Dr. Hartmann does not operate in ulceration of the stomach, when there is considerable hemorrhage, and when the ulceration is near the pylorus, he does not perform pylorectomy. Von Hacker's operation seems to him quite sufficient. Roux, of Lausanne, said that he did not share Dr. Hartmann's views on the surgical treatment of chronic ulcers of the stomach. As most ulcerations are found near the pylorus and may give rise to mechanical disorders, excision is better indicated, and as for extensive hemorrhage this required an immediate operation. Dr. Roux considered that the possible production of a "circulus vitiosus" with von Hacker's operation justified his own technic, which only required 45 minutes. Dr. Panchet, of Amicus, who is a young surgeon of the Provinces, has lately performed 22 operations for gastrectomy with not a single death. He considers Roux' operation the best, but uses Petersen's method when the patient is very weak.

The question of an early operation in appendicitis has been the subject of a good deal of discussion at the meetings of different medical congresses and societies. Broca's views, which were expressed at the Congress of Brussels last September, were the first in date. He considered it best to temporize in most cases, and such was the opinion expressed by most of the surgeons at this congress. At the Congress of Surgery, held in Paris, Dr. Thiery sought to show that by watching the patient it was possible to recognize if the case was to be severe or not. This last week, at the Academy of Medicine Dr. Richelot made a report on the same subject, in which he declared that no hard and fast rule could be established. A well-known surgeon of the hospitals confided to me a story concerning a case of appendicitis which had been operated on recently by a famous surgeon. The husband of the patient, who was an American, asked to have the appendix given him, to send it to London to be examined by a pathologist. The answer was that there was no lesion of the appendix.

At the recent meetings of the Congress of Surgery, the most important subject discussed was the treatment of tetanus, and Dr. Vallas, who was the speaker on this question, made a most exhaustive review of the question. The conclusions to be drawn from his speech are as follows: The preventive treatment has shown itself efficacious, and in all cases of suspicious wounds, 10 c.cm. of the antitetanic serum should be injected the first day, the same dose the third, and also the tenth day. This should be repeated in case the wound has not healed. Amputation is not of much benefit and should only be carried out when the condition of the limb is such as to justify this proceeding. Once lockjaw has made its appearance, the results are not so encouraging. Out of 373 cases. the mortality was as follows: 10 days' incubation, 141 cases, 80 deaths, or 57 per cent.; more than 10 days' incubation, 118 cases, with 24 deaths or 20 per cent.; undertermined incubation, 114 cases, with 41 deaths, or 35 per cent. Tetanus of the new-born and during puerperium are just as fatal as ever. Thirty to 40 c.cm. should be injected the first day, and this dose should be repeated daily until there is a change for the better. Intravenous injections do not seem to have caused any serious accidents, and the serum should be injected in 500 c.cm. of ordinary saline solution. Intra-cerebral injections are discouraged by Vallas on account of accidents seen, such as abscess of the brain and hemorrhage. but this opinion of Dr. Vallas is attacked by Dr. Championnière and Dr. Mannoury. Dr. Vallas also spoke of the results obtained in Italy by Baccelli's method. Out of 80 cases of tetanus there were only eight deaths.

SHORTENING OF THE ROUND LIGAMENT.

NEW YORK, Dec. 16.

To the Editor of the MEDICAL NEWS:

DEAR SIR:—In the MEDICAL NEWS of Dec. 13 there appears an abstract of an article of mine entitled, Shortening of the Round Ligaments per Vaginam. From this I quote the following: "The round ligaments, when shortened at the external abdominal ring, are efficient in retaining the uterus in its normal position, when applied to cases of retrodisplacement uncomplicated by inflammatory processes. In a series of 130 cases treated in this manner the author has had but two failures, etc." This gives an entirely erroneous impression. From the context "in this manner" obviously refers to shortening the round ligaments through the vagina. By reference to the original article it will be seen that a long paragraph intervenes between the two sentences above quoted. That paragraph is devoted to the intra-pelvic shortening of the round ligaments, and obviously is what is referred to in the phrase, "in this manner."

J. RIDDLE GOFFE.

29 West Forty-sixth Street.

METHYLENE BLUE AND QUININE IN THE TREATMENT OF MALARIAL FEVER.

To the Editor MEDICAL NEWS:

DEAR SIR:—In the issue for Dec. 6 of your esteemed journal appeared an article by Drs. John T. Moore and W. L. Allison, on the above subject.

Allow me to call attention to some statements made in a lecture given by me at the New York Post-Graduate Medical School and Hospital, and published in the *Post-Graduate*, Sept., 1901. They read as follows:

"It was found that the protoplasm of the parasites

shrank, became compressed and were colored blue, but that the methylene blue did not act on the nuclei of the plasmodia, and finally, that there existed an antagonism between the action of methylene blue and quinine, namely, that quinine destroyed the nucleus of the parasite, its chromatin, and methylene blue the plasma.

"Now we know that methylene blue will have a curative effect in those forms of malaria in which the plasma is most developed and quinine in those in which the nuclei are the most developed and the plasma more or less wanting. The form which is most decidedly affected by methylene blue is that of the crescents, which consist almost entirely of plasma, while on the other hand juvenile forms of plasmodia which have very little plasma remain unaffected by methylene blue, but are very sensitive to quinine. The full-grown parasites, the principal part of which consists almost entirely of plasma, are indifferent to quinine, but most sensitive to methylene blue; they are completely destroyed by it." A. ROSE.

BYWAYS OF MEDICAL LITERATURE.—XII.

TWO GENIAL DOCTORS.

THE word genial has come perhaps to have a lower meaning than it originally had. It means etymologically that a man has a special genius, is typically an individual and so worth the knowing and worth while being brought in contact with. In the December number of the *Criterion* there is an article, "Recollections of Dr. Oliver Wendell Holmes," by General James Grant Wilson, in which there is an interesting account of the relations between two of the greatest and most genial members of the medical profession who lived during the nineteenth century. They are our own Dr. Oliver Wendell Holmes, the autocrat of the breakfast table, and Dr. John Brown, of Edinburgh, the beloved author of "Rab and His Friends," a story dearer to the hearts of more English-speaking people, than any other of its size and character ever written.

Not long before Dr. John Brown's death, he said to a New York friend, then visiting him in Edinburgh, "I am a happier and prouder man to-day than I have been since Thackeray first wrote to me. I have just received a letter from Dr. Holmes, praising my pet, 'Marjorie Fleming' and 'Rab and His Friends.'" It is a pleasure to think that these two great, kindly men and genial physicians should have appreciated one another. Brown and Holmes were men whom anyone might envy and whose names will not soon be forgotten by the public, still less by the medical profession.

MARIE ANTOINETTE AND SOME MEDICAL HISTORY.

We are in the midst of a revival of interest in Marie Antoinette and her times. There are many things of special medical interest besides the psychological studies of the influences that made the nobility so blind and made the middle classes rush headlong to their destruction in that troublous period. Perhaps the most interesting thing with regard to the French revolution is that, notwithstanding its excesses and the number of lives it cost, the spirit which animated it led people to recognize the real rights of every human being, no matter how deformed or helpless he might be, better than ever was the case before. It was during the last 25 years of the eighteenth century that in France there began to be practised the proper care of the deaf and the dumb, the deformed, even the blind and then, above all, the insane. Pinel's striking off of the manacles from the limbs of the insane in the Salpetriére is only a symbol of the larger liberty that men were striving to obtain for human beings of all classes and conditions. There are certain things of medical interest in Marie Antoinette's career that are not generally known. The girl, of scarcely fourteen and one-half years of age, the daughter of Maria Theresa of Austria, found herself in peculiar circumstances in the rotten French Court, and married to the boorish and not over-intelligent Louis XVI. One of Louis' jokes that has recently been retold by one of the biographers of Marie Antoinette (a lady by the way), will serve to show the rather coarse nature of the monarch. It was the custom at the time to have the pictures of friends on bracelets, brooches, snuff boxes, chatelaines, belt buckles, combs, various articles of dinner service and the like. At one time the favorite hero of the hour in Paris was our own Benjamin Franklin. It became a fad among the women of fashion to have his portrait on many of their belongings. In the case of one young and rather handsome woman, the Comtesse Diane de Polignac, her effusive admiration for Franklin annoyed the king so much that he played a practical joke on her. He knew that she had the philosopher-scientist's picture on most of her table porcelain and so he had made for her at the Royal Manufactory at Sevres a bit of porcelain that is usually not exhibited to any but lady friends, with Franklin's portrait beautifully executed on the bottom of it.

Poor Marie Antoinette was very desirous to have an heir to the throne. Her mother, Maria Theresa, had had 16 children, and it was a tradition in the Austrian royal family that there should be a number of children. Some of the letters that passed between Marie Antoinette and her mother with regard to this matter, have been recently published in France. Louis XVI. suffered from a marked degree of hypospadias. This deformity of his urethra with practical absence of much of the penile portion, made it improbable that he should ever procreate children. The king was urged to have an operation for it, and there are some references to this fact in the correspondence noted above. It seems that a slight operation was finally done with a happy result as regards progeny, but unfortunately the offspring were only to make the mother suffer more in the years to come, when with her they were imprisoned and had to bear the hardships inflicted on them by the revolutionists. This is one of the few cases in which details of history, viewed from a medical standpoint, have come in to fill up certain gaps in our knowledge. There seems no doubt that within the next 25 years, if history is to be written with proper regard to the truth, there are many questions on which the views of medical men will have to be asked to enable a proper judgment to be made on certain questions.

LEFT-BRAINEDNESS NOT RIGHT-HANDEDNESS.

In addition to the Huxley Memorial lecture at Charing Cross Hospital, given this year, by Professor Welch of Johns Hopkins, there is a Huxley Memorial lecture of the Anthropological Institute of Great Britain and Ireland, which was delivered this year by Dr. Cunningham, Professor of Anatomy at Trinity College, Dublin. Dr. Cunningham selected as his subject the relation of right-handedness to left-brainedness. Right-handedness has existed as long as history runs and Dr. Cunningham considers that it has been acquired during the evolution of man by a process of natural selection. It is not because the right hand is more used, that the left brain came to have a better development, but on the contrary the original condition seems to have been a predominance of the left hemisphere of the brain and consequently a tendency to use the right hand more than the left. This left brain predominance is not a haphazard acquisition, picked up during the life of the

individual, but a basic characteristic in the nervous system of the individual.

Dr. Cunningham considers that the predominance of the functional power and structural development of the left cerebral hemisphere rests upon a foundation in the nervous tissues themselves, which is the subject of transmission from parent to offspring. The exceptional cases of right-brainedness and left-handedness are due to the transfer of this structural peculiarity of the brain from the left to the right side, or, more probably, to a transposition of the two cerebral hemispheres. Such partial organic transpositions are not uncommon and even complete; thoracic and abdominal viscera transpositions are not rare.

This puts the question of right-handedness and left-handedness on an entirely different plane from what is sometimes assumed to be its causation. Attempts usually futile, are often made to train children who show a predisposition to use their left hand into the employment of their right hand. This is almost sure to result in awkwardness, and delay the normal development of the individual. Such ordinary actions as writing, and the use of eating utensils may well be acquired with the right hand, but the attempt to substitute the right-hand for the left for most actions in persons who are evidently right-brained and left-handed and not the opposite is apt not to have good results.

WOMEN'S DISEASES IN THE MIDDLE AGES.

It is sometimes thought that it is only in our day that women suffer so much from so-called women's diseases. As a matter of fact it is only in our day that there is any relief from them. The collection of surgical instruments found at Pompeii contain a number of gynecological instruments, showing that in the olden times something at least was accomplished, or attempted, for the relief of women's ills. All of this knowledge seems to have been completely lost afterwards, for, during the Middle Ages, there are very few traces of any attempts to know or treat rationally the affections of the genital tract in women. That such diseases existed in abundance and were the source of untold sufferings, we have every reason to believe, not only from the nature of things, but from more actual evidence. Dante, for instance, in a famous passage, at the close of the Sixth Canto of the Purgatorio, can find no figure better suited to express his idea of the tossing, disquiet, unrestful inappeasable Florence than that of a poor woman suffering from some painful disease. He says:

"How often in the time to memory known
Hast thou changed laws, coins, polity and right
And altered all thy members, one by one.

"And if thou well reflect and see the light
Thou shalt behold thyself as woman sick
Who on her pillow finds no rest at night
And seeks to ease her pain by turning quick."

ANEMIC ANESTHESIA OR SUGGESTION?

The following account of the recent experiences of a physician traveler, which has been making the rounds of the secular press, will be of interest to those who look for explanations of anesthesia, as well as to those who seek to make the origin of the phenomena of hypnotism and allied states clearer.

Dr. Steiner, a Dutch physician, recently made a curious study while traveling in Java. He chanced to stop one Sunday at Sourabaya, where the Javanese maintain a large hospital for prisoners. His notice was directed to the fact that in the treatment of such cases as necessitated an anesthetic the native physicans did not resort to a drug, but instead they were manifestly reducing their patients to a condition of stupor by compressing the carotid artery with their fingers. The physician was so much impressed with this primitive method of rendering the patient at least partially insensible to pain that he made a careful study of it. He discovered that this method of anesthesia, although unknown to modern surgery, was, in all probability, in vogue among the ancients. The very name of the carotid artery tends to confirm the belief of Dr. Steiner, for it is frequently referred to as the *arteria soporifera*, sleep-giving artery. A name very similar to this is still applied to it in Russia. Describing the results noted in the treatment of Javanese prisoners, a writer in a Paris medical journal says: "Under the influence of this treatment the patient was seen to grow restless; at the same time his respiration became quicker and deeper; then the head fell backward. The compression of the neck was stopped, and the patient, after keeping for some instants the same immovable attitude of a sleeping man, opened his eyes with an expression of astonishment, as if he had been rudely awakened."

This, of course, might well have been a condition of hypnosis induced by suggestion, the cervical pressure being only an accompanying manipulation that induced the patient to submit more readily. The subject is, however, worthy of further study, some of which Dr. Steiner has already given it.

"These facts appearing to be worth more careful study, the author made a series of experiments on 30 Javanese, two of whom were women. He first applied the process as it had been taught him by the curer of Sourabaya, but later he was led to modify it so that he could better observe the subject under experiment. Of the 30 subjects so treated only five did not respond; with all the others there suddenly came on a complete loss of sensibility and thought, so that in one case the author lanced an inguinal abscess without the knowledge of the patient."

A NEW RELIGIO-MEDICI.

Sir Henry Thompson, the distingushed English surgeon who has now reached the ripe age of eighty-two, but with intellectual powers unimpaired, wrote in the early part of the present year an essay on "The Unknown God," which appeared in the *Fortnightly Review*. Now at the request of many friends the essay is reprinted with some slight modifications and some footnotes. It forms a very curious and interesting expression of the thought of a mature medical man at the beginning of the twentieth century. Dr. Thompson asks that the essay should be considered an attempt to seek by a carefully made induction from available data some certain assurance respecting the influence which the infinite and eternal energy from which all things proceed has exercised on man throughout his long career upon earth.

Curiously enough, Sir Henry agrees with Mr. H. G. Wells, who in his "Anticipations, an Experiment in Prophecy," noticed some time ago in these columns, considers that form of religions will ultimately disappear, or at least that the religious part of the community will be divided into two distinct camps or classes, those who enjoy complete liberty of thought and action and practise the manly virtues which are associated therewith, and, secondly, those who become devotees of the old Papal Church. Sir Henry is of the opinion, however, that the infinite and eternal energy from which all things proceed will not ever remain wholly unknown or unknowable, but may be still further elucidated as human faculties become more highly developed in the progress of time and rendered capable of receiving additional enlightenment respecting its attributes.

PHYSICIAN AND ACTOR.

In a paper on "One Century of Acting," in the last *Criterion,* Mr. Charles Henry Meltzer has some notes with regard to a well-known English actor, formerly a physician, that physicians generally will find of interest. He says: "In the past 40 years, during which Mr. Charles Wyndham, (now Sir Charles), the excellent artist, has adorned his profession, he has played many parts, ranging from light farce to poetical comedy and romantic drama. The rising generation must find it hard to realize that this well preserved middle-aged gentleman, whom John Drew has for some time past adopted as his model, served in the War of Secession as a doctor. That he did so, however, is on record. Yet not long ago he appeared as the relatively youthful hero of Rosemary. Since then he has played in Cyrano de Bergerac and in The Jest. Within narrow and well-defined limits, Charles Wyndham is even now facile princeps in his profession. He has polish, ease, and an exceptionally fine appreciation of the more delicate forms of wit. In certain parts, calling for the ability to suggest the tear in the voice, he has had few equals. We are consoled at Mr. Wyndham's abandonment of the medical profession, since he has succeeded so admirably in *the profession par excellence,* according to its members. Mr. Wyndham is one of those who were recently honored by knighthood, because he seemed to represent a typically successful man in the profession that he has chosen. Perhaps the medical profession will be satisfied to part with a few more, if they should have ambitions of the same kind and we might thus find a satisfactory issue for the overcrowding question which is becoming so urgent.

THE GOPHER ASCETICS.

A recent issue of the New York *Sun* has the following excellent account of a modern fasting movement in Minnesota:

"For the benefit of science, we have noted many plans and systems for the reduction of poverty and too-too solid flesh, the promotion of longevity and the testing of the human constitution. Half the world is on a diet already and it is strange that the price of foods doesn't fall before the decreased demand. But patience! Even if dieting puts no money in the purse, think of the moral satisfaction and superiority which it brings. In Buddhist phrase the dieter 'accumulates merit.' You can tell him by his air of virtuous self-consciousness; and if he bores you with the story of his cure and drips with propagandist zeal, his good intentions are his apology.

"The burghers of St. Paul and Minneapolis cities once charged with 'padding' their census returns, are now unpadding themselves. A Minneapolitan business man hasn't tasted food for 49 days. Fifty days ago he was a desperate dyspeptic. Now he is a rejoicing eupeptic; and he has attended strictly to business all the time. He has lost 18 pounds, and found happiness. 'With what lasting results remains to be seen,' sneers some luxurious and gorbellied doubter. The moral triumph will be lasting even if some of the banished pounds and dyspepsia come back. Two paralytics have fasted 49 and 50 days respectively and believe themselves to be 'completely cured.' See how admirably faith joins fasting. A woman who has fasted for 28 days 'rejoices that she is at last free from what she had long believed to be chronic bronchitis.' Even if she suffered merely from a 'claim' of bronchitis, she has settled the 'claim.' Another woman has fasted 19 days 'for the routing of liver indigestion.' The liver is the toughest old sinner in the insides; but it can't resist the no-food, no-disease theory.

"Disease seems complex on account of the multitude of long names which the doctors have given it. Perhaps mankind would have been a great deal healthier if the Greek and Latin languages had never been invented. If we understand the Gopher theory, disease is one, food; and cure is one, abstinence from food. Paralysis, chronic bronchitis and the rest of the cursed brood of itises are to be conquered by the same easy means. There is a beautiful simplicity in the Minneapolis and St. Paul system, although it seems a little cruel to the butchers and bakers and grocers. The female Galen who is the director of this fasting school finds it 'amazing that such a simple and rational process of cure should meet with such strenuous opposition.' She forgets the economic disturbances and displacements which the general adoption of her therapeutics would cause.

"One patient has died under the treatment, but what of that? Thousands of folks die of a surfeit. Can't one be allowed to die of a fast?"

THE ILL HEALTH OF AUTHORS.

It is a peculiar fact that the letters and other writings of DeQuincey, Carlyle, Darwin, Huxley and Browning, liberal as they are with references to the continued ill-health of those great writers, have not before this suggested to the medical profession an opportunity for research into the causal factors of those physical conditions. That the opportunity has not until now been recognized in its proper light is evidenced by the hitherto total absence of any work dealing with this subject. Dr. George M. Gould's Biographic Clinics (P. Blakiston's Son & Co., Philadelphia), which is devoted to this neglected subject, should, therefore, prove a most unique and valuable contribution to biographical and medical literature. The work is announced for publication in December. Dr. Gould has gathered from the biographies, writings and letters of the five named men every reference to their ill-health. Each endured, as is well known, a life of suffering which made almost every day a torment and by which their work and worth as an asset of the nation and civilization was conditioned and often rendered morbid. The cause of their affliction was an utter mystery to their physicians. No explanation explained, and no cure cured. Dr. Gould has gone into the "why" of this very thoroughly and the conclusion reached by him, from logic and from a careful summary of the clinical symptoms, is that each of the writers suffered from eye-strain, and that scientific correction of their ametropia would have transformed their lives of misery into lives of happiness. A history of the discovery of astigmatism and eye-strain, with a discussion of its indications and responsibilities, completes the work. It is interestingly written, and will undoubtedly meet with a ready sale among medical men and those interested in the works and lives of the quintette of great writers.

SOCIETY PROCEEDINGS.

THE HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held Saturday, November 22, 1902.

The President, William B. Coley, M.D., in the Chair.

The scientific business of the evening was begun by the presentation of printed slips, arranged by Dr. Follen Cabot, containing instructions for patients suffering from either one of the more important venereal diseases. These instructions are meant to relieve the physician of

explaining many things that are time consuming and some of which may easily be missed during the course of an ordinary consultation. When the patient is discovered to be suffering from either gonorrhea or syphilis, the appropriate slip is handed to him and then the physician is sure that no important warnings with regard to the nature of the disease, its possibilities of being conveyed to others, or of causing serious harm to the patient himself by the infection of other mucous membranes, are neglected. These slips have already been adopted by the Presbyterian Hospital of New York City for distribution to patients suffering from these diseases and a certain number of physicians have taken up the practice of handing them to private patients. They can be procured through Dr. Cabot himself.

Instructions to Those Having Gonorrhea or "Clap."—Gonorrhea or "clap" is a local contagious disease which requires treatment until the physician pronounces you cured. To avoid infecting others and to prevent complications, as bubo, stricture, swollen testicles, etc., the following rules should be observed: (1) During the first few weeks walking should be limited. When the discharge is profuse you should keep off your feet as much as possible. (2) Do not use alcohol in any form as it always prolongs the disease. Drink milk, tea, vichy or seltzer and from six to eight glasses of water during the day. (3) Avoid all sexual relations until you have been pronounced cured by your physician, as the disease may be given to a woman even after the discharge has apparently ceased. When it is present you should avoid sexual excitement, as erections always aggravate the disease. (4) Always wash the hands after handling the parts. The discharge if carried to the eyes will cause blindness. (5) Sleep alone and be sure that no one uses any of your toilet articles, particularly towels and wash cloths. (6) Never lend your syringe to anyone and as soon as you are well destroy it. (7) Be sure that the bowels move every day. If they are inclined to be constipated take a dose of Rochelle salts before breakfast. (8) Do not use mustard, pepper, horseradish or stimulating sauces on your food.

Instructions to Those Suffering from Syphilis.—Syphilis is a constitutional disease. It is "in the blood." Local remedies and taking medicine for a few months will not cure you. You must be treated for three years. The effects of this disease are far reaching, and if treatment is neglected much trouble and suffering may be caused, not only to yourself, but to others. The following rules must be observed during the first year: (1) Sexual intercourse should not be indulged in. (2) Alcohol in all forms should be avoided as it always aggravates the disease. (3) Do not smoke or chew tobacco. (4) Sleep alone. (5) Under no circumstances should any one be allowed to use your toilet articles, as towels, brushes, combs, razors, shaving brushes, etc. (6) No article that has been in your mouth should be used by others, as tooth brushes, tooth picks, pencils, pipes, cigars, cigarettes, forks, spoons, drinking cups, etc. (7) You must not kiss any one, especially children. (8) Brush your teeth night and morning and keep your mouth clean. (9) If you have bad teeth, have them attended to by a dentist, and be sure to tell him that you have syphilis, so that he can take necessary precautions and avoid the possibility of infecting others. (10) Acids in food and drink should be limited.

Practical Instructions.—Dr. John H. Huddleston said in discussing Dr. Cabot's slips that the instructions are eminently practical, concise, yet complete. He suggested that copies of them should be sent to the Board of Health with the idea that their distribution to patients suffering from venereal disease should be recommended for adoption in the various dispensaries under control of the Board of Health. It seems likely that their distribution will accomplish not a little in preventing the spread of venereal disease.

Dr. Howard Lilienthal said that these slips are especially commendable because there are no words wasted in them, and because they are so simple. There is nothing that any patient of ordinary intelligence can not readily understand and the dangers of causing infection of others, are clearly and unmistakably pointed out.

On motion Dr. Huddleston's suggestion that the slips be sent with the Harvard Society's recommendation to the Board of Health was unanimously adopted.

Innocent Syphilis and Its Dangers.—Dr. Dawbarn pointed out how important it is that syphilitic patients in hospitals should be warned of the dangers they subject others to, and should be taught how to help in preventing the spread of their disease. He added that syphilis is much more common in hospitals than is considered and physicians and surgeons particularly need to exercise the greatest care in order to avoid contracting the disease. In French hospitals carefully prepared statistics seem to show that 10 per cent. of the patients are sufferers from syphilis. It is not unlikely that our proportion of syphilitic patients, especially in charity institutions, is not much less than this. It is because of this that rubber gloves are an important thing for the surgeon himself as well as for his patient. Patients are protected from septic infection, surgeons from syphilitic infection. Authorities on venereal diseases, such as Dr. Bulkley, say that syphilis is extremely common among physicians and is contracted by various means either scratches or the infection of small wounds of various kinds in the course of their professional duties. Within a very short time one promising young surgeon in New York has died from brain syphilis, as the result of a chancre acquired from the prick of a needle while sewing up the lip of a syphilitic patient. Dr. Dawbarn considers that the spread of knowledge with regard to venereal disease is sure to do good and that Dr. Cabot's slips, which seem to be an improvement over certain instructions drawn up with the same idea before, are especially to be commended.

Chemistry of Feces.—The paper of the evening on this subject was read by Dr. John H. Huddleston. At present the clinical investigation of the feces, has but very little clinical importance, in fact none for the ordinary practitioner. The subject is growing in importance, however, and is attracting more and more attention. In 1899, in his book on clinical diagnosis, Musser said that the presence of peptones and of certain bile pigments have some clinical significance, but beyond this, the chemistry of the feces was of no import. Sahli and von Jaksch devoted more space to it, but still did not insist much on it. Of late a book on the subject by Schmidt and Strassburger has attracted attention, and shows how the subject is developing. So far the chemical methods of investigating the feces, have been transferred from the corresponding methods for examination of the urine. Owing to the daily variations in quantity and character of feces, they must be collected for three days and the average of 24 hours taken as a sort of standard. In order to be of special significance, the patient should be fed by a test diet for at least a day. As the feces lose certain of their volatile products, when dry, fresh material as a rule is required for examination. The weight and reaction of the feces are important and then various chemical reagents are employed to show the presence of certain material. Investigation by distillation is sometimes employed and the residue dissolved in alcohol and ether for the purpose of estimating the biliary salts and acids, cholesterin, etc. The quantity and quality of excremen-

titious material passed depends, (*a*) on the amount and character of the food; (*b*) on the excretion of material from the body after it has been used up in metabolic processes, data for this estimation are obtained from the stools of professional fasters; (*c*) on the rate of peristalsis, which if delayed may lead to greater absorption and if hastened may prevent the absorption of material, which would otherwise find its way into the system; (*d*) on the individual absorbing processes; (*e*) on the bacterial flora present and the changes which they induce in the culture media in the intestines on which they grow.

Acid and Alkaline Reaction.—The outer part of solid feces may often be alkaline, when the inner part is acid. When feces are strongly acid, this is usually due to the presence of fatty acids. Fermentative processes generally cause acidity. Putrefactive processes on the other hand, cause an alkaline reaction. An exclusively milk diet gives a strong acid reaction in the stools. A meat diet is apt to be neutral or alkaline. Mixed diet produces a neutral reaction in the stools. The nitrogenous material in the stools is always increased whenever the absorbing processes are disturbed. For instance when there is an increase of metabolism, or in tabes mesenterica.

Fats and Soaps.—The fats and soaps found in the stools are sometimes of clinical significance. Fats that melt at low temperatures are better absorbed than those whose melting point is higher. The melting point of the fats usually found in the stools is at least 10 per cent. above that of the ordinary fat-melting point. Qualitative examination for fats is easy. Their presence may be recognized by the unaided eye. Quantitative examination is difficult, however, and as this is the only method that would give exact data, the questions of fat in the stools must be further developed. Sugar may occur in the presence of diastase in the large intestine which may form this material. Bacteria also may break the cellulose sheets of starchy vegetables with the production of some sugar. The closure of the pancreatic duct does not cause the presence of starch in the stools, though this used to be asserted. Heart disease may increase the amount of starch in the stools, because of interference with digestive processes generally.

Intestinal Calculi.—These are usually formed around a center that was originally a biliary or a pancreatic calculus. They may occur as the result of intestinal concretions around the foreign body. At times true intestinal calculi are found, consisting of a core of organic matter, incrusted with inorganic salts. Usually they have existed for some time before reaching the size at which they pass from the intestines or produce some serious pathological conditions for which they have to be removed.

Clinical Significance.—Dr. Edward A. Foote, in discussing Dr. Huddleston's paper, said that he had recently seen several rounded rather hard bodies in the feces of a patient suffering from cancer of the rectum. The cancer had caused an occlusion of the rectum and an opening had formed between the rectum and the vagina through which particularly the more fluid portions of the feces found their way. This led to an inspissation of the remaining feces and the formation of hard brown more or less rounded lumps. These were not true calculi, but are evidently well on their way to the formation of such bodies and illustrate how intestinal concretions may be formed.

Dr. Howard Lilienthal said that the occurrence of light-colored stools, in which nevertheless there is some bile pigment, shows that medical men and surgeons cannot be too careful in judging entirely from the color of the stools, as to the occlusion of the biliary duct. The presence of leucohydrobilirubin should always be looked for in these light-colored stools and its presence may save an unnecessary operation. If the color can be restored by some simple chemical reagent the house staff of hospitals should become acquainted with the reagents necessary in order to make assurance of diagnosis possible.

Dr. Dawbarn said that at present two forms of bacteria, the *bacillus coli communis* and certain pyogenic micro-organisms, had been found as the cause of biliary concretions. It would be interesting to know what form of bacterium was considered to be responsible for the formation of enteroliths, or intestinal concretions.

Anomalous Heart Case.—Dr. Charles Schramm presented a boy of twelve whose father confessed to having had syphilis before his marriage and whose mother had had two miscarriages before the boy's birth. The labor was rather difficult, though the child does not seem to have been locally injured. The baby proved hard to nourish and at the fifth month a heart murmur was noticed. Some time later it was noticed that the apex beat was rather to the right of the sternum and that a loud murmur could be heard over the entire chest in front and behind. The boy suffered from scarlet fever at seven years of age and had two attacks of measles, one before he was a year old and one at nine years; besides this he suffered from a number of attacks of tonsillitis, so that he seems to have been especially susceptible to infectious diseases. At the age of about ten years a painful swelling developed over his right tibia. This was diagnosed as syphilitic peritonitis, by Dr. Schramm confirmed by a consultant. The boy improved under antisyphilitic treatment. Several years ago he got lost while out in the country and had to walk for many miles. When he came home for the first time he complained of palpitation, pain in the chest and discomfort. Since then he has been perfectly well and has had no symptoms from his heart.

Differential Diagnosis.—The exact diagnosis of the condition present is very difficult. The murmur was noted so early that it seems probable that it was congenital. At the present time there is an area of dulness between the nipples along the line connecting them. The dulness is greatest on the right of the sternum and over this part of the chest a tremor can be seen and a thrill can be felt. This points to a stenosis of some important valve and as congenital lesions are usually at the pulmonary valve, suggests pulmonary stenosis. The murmur heard occurs during the systole and is evidently due to the contraction of the ventricle forcing the blood past a narrowed orifice. It is possible that the aortic orifice may be affected. The amount of heart dulness on the right of the sternum, however, seems to point to a very much enlarged right ventricle. This is best accounted for on the theory that the obstruction of the pulmonary orifice has led to hypertrophy of this right ventricle.

Dr. Potter in discussing the case said that lesions of the pulmonary valves are very rare and that usually in stenosis of the pulmonary valves the murmur produced can be followed into the lungs. This is not true in this case, as there is no murmur traceable from the ordinary region of the pulmonary valves into either lung. The murmur can be followed somewhat into the vessels of the neck and the pulse is small, indicating some obstruction in the ordinary arterial circulation. These facts seem to indicate an aortic stenosis rather than a pulmonary stenosis.

Dr. Spooner of Boston said that the murmur is heard on the left of the sternum quite as well as on the right, and is of the loud character, yet anomalous qualities that are associated especially with congenital lesions.

New Plastic Method for Hypospadias.—Dr. Foote described a case of not very marked hypospadias in which he was able to close the groove that represented the urethral canal by means of part of the foreskin. In the patient the hypospadiac opening of the urethra was situated one-half inch farther back than it should be and the frenum and the lower part of the foreskin was missing while the glans penis was grooved underneath. To take tissues from the sides of the penis, as is usually done, frequently leads to tension and failure of the operation or the presence of cicatricial tissue that is subsequently bothersome. In this case there was a hood of tissue over the glans penis, representing a redundant semi-foreskin. This was loosened from its fastenings, except at each side of the penis and being passed over the glans, somewhat as the bail of a pail would be carried from side to side and thus gave an abundance of tissue for closing the groove and making the urethra complete.

Conjugal Syphilis.—Dr. Daniels said that the question of syphilis in husband and wife sometimes makes one of the most difficult problems in ordinary practice. The question always is, shall the wife be told her condition? If she is, domestic trouble impends. If she is not, there is danger that she may communicate the disease to her children, or to female relatives, and that she will not take proper precautions with regard to herself nor undergo treatment for a sufficiently long time. On the other hand, if without telling her the exact nature of her disease, the physician attempts to insist on her taking such precautions as not allowing the use of towels, napkins, handkerchiefs, cups and saucers, table utensils, to other members of her household, and not to kiss her children, there will almost surely be a suspicion aroused, and she will find out one way or another. Dr. Daniels has had a case under his care recently in which the woman presented many of the symptoms of syphilis. She was of excellent character, moving in good circles and a thoroughly domestic woman. Dr. Daniels sent for her husband who said that if his wife had syphilis, there was no reason to think that she should have it from any one else except him. He had never had any symptoms, so far as he knew, of the disease, however, and was not suffering from it at the present time. A careful examination was made and the only suspicious thing that could be found, was a spot somewhat discolored and rather tender on the hard palate. There was no lesion on the penis and no symptoms on the skin. Dr. Daniels was not sure, and sent the man to a specialist who also was not sure. Later, however, the development of other symptoms showed that the case was really syphilis. The man confessed that it might have been possible for him to have acquired the disease from kissing a woman whose reputation was no better than it ought to have been. Dr. Daniels was in a quandary as to what should be done. The husband naturally does not want to have his wife frankly told that she has syphilis. To leave her in ignorance would expose her children and some other near relatives to the contagion of the disease.

Innocent Syphilis.—Dr. Follen Cabot, in discussing Dr. Daniels' case, said that it is often possible to impress upon people the idea of the frequency with which syphilis occurs, without necessarily being a venereal disease. Patients may, because of this, be told that they have syphilis and be required to take all the precautions necessary to prevent its spread and yet not suspect that there may have been any criminality involved in the manner in which it was acquired. It does seem important to save innocent children from the danger of infection with so serious a disease. Some risk of trouble between husband and wife may even be taken for this commendable purpose. As a rule, however, the Doctor can manage to put the case in such a way as to lead only to a gradual realization of the real condition present, though at the same time there is absolute insistence on the following out of instructions and precautions. Each case is individual in this matter and no general principle can be given.

Thyroid Dislocation of Hip.—Dr. William B. Coley described the case of a man of seventy who fell from a height of some 10 feet and struck on his hip. The patient did not know exactly how he landed. The head of the femoral bone could be felt in the perineal region just anterior to the tuberosity of the ischium. It is very rare to have a dislocation rather than a fracture of the bone at seventy years of age. The patient did not have relaxed ligaments around his joints, nor was he very thin and spare—such a man as might be expected to have very free play of joints. On the contrary he was very strongly built. The directions for replacing a thyroid dislocation are often not given in the text-books because the condition is so rare. When called to the case, Dr. Coley knew that it was dislocation of the hip and took a manual of dislocation with him, as the patient was many miles from the city, but the particular manual selected did not mention thyroid dislocation at all. A full description of this case, with an illustration, will appear in a subsequent number of the MEDICAL NEWS.

Hemianopsia.—Dr. Huddleston reported the case of a man of seventy-two who suffered from hemorrhage into the brain. As a result of it right hemianopsia developed. No other persistent symptom was noted after the seizure. His hemianopsia affected, however, not only his view of objects looked at with the eye, but also affected the mental picture of objects called up by memory, when for instance the eyes were closed. If the man recalled scenes of his boyhood, he could see only half of the pictures of the things as they really existed in his memory. Dr. Huddleston does not know of a report of a similar case and wished to ask opinions as to whether the condition were hysterical, or if it were a further manifestation of the hemianopsia, due to a true organic lesion.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, December 3, 1902.

The President, Robert T. Morris, M.D., in the Chair.

Report on Cases of Fracture of the Skull.—Dr. F. S. Dennis made this report. He said that modern pathology had shown that intracranial tension required surgical interference, though the exact line of demarkation between conservatism and bold operative interference was not clearly defined. It was most important to differentiate clearly between surgical compression and surgical pressure. The phenomena connected with concussion were often transitory and as a rule there was no important lesion of the brain. Fraenkel maintained that without consciousness no concussion of the brain can occur—a fact of great medico-legal importance. Concussion was found both in fractures of the skull and in trauma without fracture. His own studies indicated that the more highly the intellectual faculties were cultivated the greater the degree of shock following the head injuries. A striking instance of this was to be found in a boy whom he was about to present to the Society. He was stupid and illiterate, and after falling from the sixth story, picked himself up and walked again to the sixth story, without exhibiting any shock or concussion. It was found that he had a compound comminuted fracture of the skull. By

the term cerebral compression was meant the application of any force acting from without upon the brain, in part or in whole. These forces might be blood, bone, pus or foreign bodies. On the other hand, by cerebral pressure was meant the application of any force acting from within upon the brain causing the latter to impinge upon the bony walls of the cranial cavity. This condition was observed in diffuse meningitis, surface blood effusions and in cerebral edema. If the vasomotor system failed, the blood pressure fell below the intracranial pressure, and the patient succumbed. The difference between these two conditions was illustrated by several cases presented. In one case of compound fracture of the skull there was a wound of the lateral sinus requiring packing with gauze. This caused paralysis, which disappeared as the gauze was gradually removed from day to day. When the gauze was removed, the movements in the legs were increased to such an extent that they could be flexed upon the abdomen. Observations on the blood pressure in the radials before and after the removal of the gauze was interesting in connection with this study of cerebral compression due to the mechanical pressure of gauze over the motor centers of the anterior and central motor convolutions. The patient presented was a young colored man who had been injured by the explosion on election night. On reaching the hospital, the bleeding was terriffic, requiring the packing in of about three feet of gauze. Another case illustrating cerebral pressure was that of a child who fell three stories and struck upon the head. The child was in the deepest coma with slight Cheyne-Stokes respiration and high arterial pressure. The injured scalp was incised, and a linear fracture found. Through the cleft, blood and cerebral substance flowed. The child remained unconscious for over a week. The pulse and respirations rapidly fell to the normal, and so did the temperature, though there was a secondary rise occasioned by an encephalitis. The child was blind during the attack of encephalitis, or for a period of two weeks. Some months following the injury the child was found to be bright intellectually; there were no abnormalities of gait, in fact, it was apparently a normal child. At the time of the operation, Dr. Dennis said he felt that the case was hopeless and that death would probably occur within an hour or two, but he had made the exploration, feeling that it was called for, and he was now convinced that the operation had certainly saved the little one's life. The next case presented also illustrated cerebral pressure. and, in addition, the fact that operative interference was not indicated. The patient had been admitted to the hospital suffering from hematemesis, but there were no symptoms pointing to a serious stomach lesion. There was found to be deafness on the right side, and the patient complained of a certain fulness in the head towards the base of the skull. The loss of hearing had occurred at the time of the accident. A diagnosis was made of fracture of the base of the skull. On the third day a well-marked ecchymosis appeared behind the mastoid, making the diagnosis of fracture of the posterior fossa positive. The hematemesis was explained by the passage of blood through the fracture and a fissure into the Eustachian tube, and from there into the stomach. The arterial pressure became less within two or three days after the injury, and although optic neuritis was present in both eyes for a time all of the symptoms gradually improved, and the man could now walk fairly well, although he became dizzy if he looked down.

Another patient presented was a child who spent most of the time shrieking and crying, and evidently suffering from great cerebral tension. It was proposed to relieve this tension by operation.

It should be remembered, Dr. Dennis said, that the brain is incompressible, and that the cranial cavity is incapable of expanding. If a foreign body were sufficiently large to reduce the intercranial space one-twelfth death would result. Cannon had shown that anemia of the affected area alone was not the only factor in the production of intracranial pressure. There was also increased osmotic pressure in the brain. Sometimes very slight lacerations were followed by death, probably because of the development of an edema after the injury. Trephining of the skull relieved the pressure, and often saved life.

With regard to treatment, he was convinced that deep coma called for operation at once; in the absence of such coma he was in doubt in many cases as to the necessity for operation. The indications for operation were clear when the skull was injured, but when there was intracranial pressure without injury the surgeon must be in doubt. There are really two classes: (1) Those in which the intracranial tension was sufficient to produce profound coma, and (2) those in which this tension was not sufficient to produce coma. The condition of the patient, after a study of the symptoms for three or four days, afforded the best guide as to whether or not an operation should be done. If the arterial pressure rose to a certain point, and remained stationary, it was safe to delay operation.

Dr. John F. Erdmann said that the reader of the paper had made a beautiful physiological study of this subject of cerebral pressure, and the paper presented the clinical aspect with exceptional clearness. When the case presented at the outset the deepest coma, it was necessary to observe the patient for several days. A case was mentioned in which a man had shot himself in the head at the junction of the parietal and frontal regions, injuring the superior longitudinal sinus. The fracture was elevated and the fragments removed, and then the hemorrhage was controlled by packing in a strip of gauze about three feet long and two inches wide. It was thought best on the eleventh day to do a motor-cortical operation. Two ounces of clot were removed, and Dr. Erdmann passed his finger into the channel made by the bullet. Immediately after the removal of the disk of bone, and of the blood the patient regained the function of the leg and began to regain the function of the arm, and could also speak. Another case in the same hospital was that of an old man who fell off a car, and when picked up was paralyzed. A motor-cortical operation was done and four ounces of blood-clot removed. The patient passed into still deeper coma, and finally died. Nothing was found at autopsy except edema of the brain.

Dr. Robert T. Morris said that a certain amount of irritation produced by the packing could be overcome by interposing between the bone and the brain gutta percha tissue or, better still, Cargile membrane. This same membrane could be used to bridge over a gap in the skull left after operation.

Dr. Russell Bellamy recalled a case seen in the alcoholic pavilion in the summer of 1893. The man was supposed to have been injured in the head, and was suffering also from alcoholic coma. There was a slight lacerated wound over the parietal eminence. It was cut down upon and a slight fissure found. The next morning the man was in convulsions, the left hand, arm, shoulder and a partion of the face being affected. He died within an hour, and at the autopsy a very large blood-clot was found over the fissure of Rolando, and the brain was very greatly compressed.

Dr. Erdmann said he did not think the gauze in his case was the cause of the paralysis. Ten years ago he had received at the Workhouse and Almshouse a woman with a contusion and laceration at the left side of the occipital protuberance, and the paralysis corresponded to the seat of the injury. On cutting down upon the right side a large blood-clot was found and removed, and the patient recovered.

Pelvic Suppuration in the Female.—Dr. A. Brothers read this paper. He said that the suppurative process ordinarily originated in the Fallopian tubes, the ovaries or the neighboring vermiform appendix. Pelvic suppurations were anatomically divided into: (1) Adnexæ and (2) connective tissue suppuration. Both conditions were sometimes merged in the same patient, or could not be differentiated; nevertheless this division was of practical value. Pelvic suppuration occurred for the most part during the child-bearing period. His records showed only five under the age of twenty and five above the age of forty. He had been surprised at the large number of cases in which gonococci were found, even when such infection was not even suspected. The chief sources of pelvic suppuration were trauma, appendicitis, puerperal infection, tuberculosis and gonorrhea. His records showed 33 gonorrheal cases, 25 puerperal, 25 tuberculous, three appendicular and one traumatic. Women often carried gonorrheal abscesses for years without any special discomfort or risk, and he thought he had seen a few actually recover. It was possible for very small pus collections to undergo absorption, and sometimes pus sacs discharged into the uterus, leading to recovery. Sufficient attention had not been paid to the relation which gonorrhea bears to puerperal sepsis. The diagnosis was made from the history, the symptoms and the physical signs. Traumatism, gonorrhea and a recent childbirth were suggestive in connection with the possibility of the existence of pelvic suppuration. In all of the cases there was a sense of lassitude, and this might be associated with slight chills or with more or less pain. The presence of a hard, board-like exudate might justify delaying operation. It was often necessary to keep the patient under observation for some time; it was sometimes absolutely impossible to differentiate between a suppurating tube and a connective tissue abscess. The absorption or pus collections or the discharge of a pyosalpinx into the uterus occurred so exceptionally that one was not justified in giving it serious consideration in connection with the treatment. While the only proper treatment for pelvic suppuration was surgical, good medical judgment was often requisite for the treatment in the early stages, and in deciding upon delay in order to allow the pus collection to become more distinctly localized.

The author presented a tabulated record of the 92 cases upon which he had operated for pelvic suppuration. Of these, 41 were operated upon from above, with 39 recoveries and two deaths; 45 were operated upon per vaginam with 42 recoveries and three deaths, and six cases were operated upon both from above and below, with five recoveries and one death. He was convinced that the surgeon should not be wedded to either the abdominal or the vaginal route. In the majority of cases of laparotomy for pelvic suppuration there was a rise of temperature of half a degree to two degrees within 48 hours as a result of intestinal toxemia. To avoid this he was now in the habit of opening the bowels with fractional doses of calomel, beginning immediately after recovery from the anesthetic. He did not think it was good surgery to remove a healthy uterus because the appendages happened to be diseased. The following rules were laid down: (1) To prevent suppuration, examinations in patients suffering from any variety of pelvic inflammation should be made gently and infrequently; (2) the use of sounds and cervical dilators under ordinary circumstances should be restricted to the operating room where proper preparation and proper precautions can be taken; (3) after a gonorrheal pus tube has been removed, the woman must be warned of the liability to infection of the other side if she subjects herself to the chance of another infection by the diseased male, and (4) abscesses pointing above or below should be treated by simple incision and drainage.

Dr. Frederick Holme Wiggin spoke of the importance of pain in connection with the diagnosis. If a pelvic tumor were not painful the presence of pus could generally be safely excluded. Pelvic suppuration, he thought, was very frequently due to the practice of curetting the uterus in office practice without proper precautions. There were more cases of pelvic suppuration in women due to tuberculosis than was generally thought to be the case. This was especially true of young women. He had never seen a unilateral pyosalpinx. It was by no means an infrequent occurrence for these abscesses to discharge through the uterus. Quite large pus collections were frequently felt on one day and would be gone by the next day, evacuation having taken place through the uterus. Formerly he had drained pelvic abscesses through the vagina, but more recently he had found it better to do a laparotomy and not only remove the pus collection but also the cause. He favored removal of the body of the uterus because if this were not done the patient was apt to return subsequently with disease of this organ. The removal of the uterus did not increase the risk. The organ should be removed down to the cervix. In recent years it had been his custom to abandon drainage altogether provided it was possible to remove the cause of the suppuration. In some cases in which the pelvis was necrotic he had walled off the intestines and applied first pure carbolic acid, and then alcohol on a swab, and had finally flushed out with saline solution and closed the abdominal cavity while filled with this solution.

Dr. William J. Chandler said he wished to emphasize the necessity of making each one of these cases a study by itself. In the old days many of these abscesses pointed spontaneously, and discharged through the vagina or rectum, and while the process of repair was slow, these patients usually recovered eventually. He did not wish to advocate the witholding of better surgical treatment, yet he would insist upon the comparative safety in many cases of waiting and watching. In a recent case of criminal abortion and septic peritonitis, the woman was almost in collapse when admitted to the hospital. There were two large abscesses found on laparotomy, and they were quickly drained. The patient's condition was so bad that further operation seemed inadvisable. She recovered and left the hospital, but subsequently required another incision of the abscesses. A third time the abscess cavities called for opening, and then there was such a hemorrhage that he learned the operating surgeon had been forced to open the abdomen. Despite this she succumbed.

Dr. R. T. Morris said regarding the gonorrheal infection appearing to be the mildest, that he thought this was dependent largely upon the terminal conditions. The factor of cell resistance was often of great importance, although it was one not often discussed. Clark's paper on the cleansing of the abdomen without drainage was an epoch-making contribution to the literature, although it had attracted very

little attention when first published. The present tendency seemed to be toward closing the abdomen with little or no drainage. He had made a series of cultures, and had found that even when there was active bacterial invasion, if the chief pus collection were removed there was no further infection. If a pus collection formed again it apparently pointed almost invariably in the old line of operation.

Dr. Brothers said that when the process was acute, there was always pain present, and it was due not to the mere presence of a pus collection but to the escape of the pus and the consequent setting up of a peritonitis. From an operative point of view, the tube distended with pus is removed, and not the one which might have been originally infected and had undergone cure. If it were assumed that these pus collections were bilateral, then both the appendages and the uterus should be removed. This did not seem to him to be the trend of modern gynecological surgery, particularly in this country—indeed, there was a disposition at the present time not to remove pus tubes, but rather to open them and wash them out.

Dr. Wiggin explained that although he favored the removal of the uterus he always left the ovaries, even when forming the wall of the abscess. Of course, if they were themselves diseased they would have to be sacrificed.

Empyema of the Accessory Sinuses of the Nose.—Dr. J. H. Woodward was the author of this paper. He called attention to the fact, that the cells of the ethmoid must be regarded clinically as an essential part of the sinus system of the upper respiratory tract. These cells were in two groups, an anterior and a posterior. As a rule, in health there was no communication between those two groups. The ethmoid cells often extended into the orbital roof, and frequently as far backward as the apex of the orbit. The frontal sinuses became distinct air cells from the sixth to the eighth year, and attained their full development about the thirtieth year. Turner had examined 355 skulls, and found the septum in the mesial plane in 277, and its lower end in this plane in all but 13. These sinuses were often subdivided into several compartments. In operating through the anterior wall of the sinus the direction should be directly backward for 8 mm., and if not pierced, the direction should be made downward. The maxillary sinus usually discharges through a single ostium in the upper portion of the inner wall. The sphenoidal sinus opens into the superior meatus by an aperture not properly located for drainage. The majority of the inflammations of the accessory sinuses were secondary to intra-nasal inflammation. Pyogenic inflammation of the maxillary sinus, however, was most commonly due to dental caries. Perhaps the most universal subjective symptom of inflammation of the accessory sinuses was pain, the intensity of which varied greatly. There might be at times such a marked periodicity to this as to suggest the diagnosis of malaria. In maxillary sinusitis the pain was chiefly frontal, whereas in frontal sinusitis the seat of the pain was much lower down than one would expect. The sinusitis was also associated with the signs of a rhinitis, and there would be a discharge of pus from the nose. Pus from the frontal sinus and anterior ethmoidal cells appeared high up, flowing forward and downward and backward toward the middle meatus. Pus from the sphenoidal cells could be seen by the rhinoscopic mirror flowing backward toward the throat. Transillumination was an important though not infallible aid to diagnosis, and should never be omitted. The natural course of an acute sinusitis was toward recovery. When the sinuses were obstructed by inflammatory swelling or by abnormalities there was not this tendency. In acute cases the treatment should be directed toward securing patency of the orifices of the sinuses. Mild alkaline sprays containing cocaine were useful as were also the use of steam impregnated with menthol. Curettage and irrigation with a saturated solution of boric acid were beneficial in the chronic cases. In very bad cases pure carbolic acid might be applied, and need not be followed by the use of alcohol. It was not advisable to irrigate the antrum for more than two or three weeks after the operation. Should pus formation persist after one month, a large opening may be made for drainage through the inferior meatus of the nose. Obstructions in the nose should be removed as a preparatory treatment in cases of chronic suppuration of the accessory sinuses. In the case of the frontal sinus the best method was by external operation, and the resulting deformity need not be very great. Suppuration of the ethmoidal cells was preferably attacked by the intra-nasal route, using the cutting forceps and curette carefully. The floor of the cells should be cut away as far as possible, and the remainder curetted. The sphenoidal sinus should be approached by the intra-nasal route after the removal of the middle turbinate bone. The results of treatment of empyema of the accessory sinuses were satisfactory, but complete eradication of pyogenic infection was one of the most difficult tasks in surgery.

Dr. H. H. Seabrook said that he had seen for the most part the class of cases causing necrosis of the orbit. In his experience it had not been necessary to also drain through the nose, and the free communication of the veins of the face made one liable to carry infection into the cerebrum if this were done during inflammation. The operation could be done along the inner wall and only a linear scar be left. In disease of the frontal sinus and upper ethmoidal cells, the orbital operation seemed to him worthy of mention. A flap operation was done, and good access to the part thus secured. Good drainage could be obtained through a small opening in the upper lid. Very little scarring was left, and the suppurative process was usually controlled in a few weeks.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

TRANSACTIONS OF THE ASSOCIATION OF AMERICAN PHYSICIANS. Seventeenth Session. 8vo, 667 pages. Philadelphia.

OBSTETRICAL NURSING FOR NURSES AND STUDENTS. By Dr. H. E. Tuley. 12mo, 198 pages. Illustrated. G. P. Engelhard & Company, Chicago.

LESSONS and LARORATORY EXERCISES in BACTERIOLOGY. By Dr. Allen J. Smith. 8vo, 298 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

THE EARTH IN RELATION TO THE PRESERVATION AND DESTRUCTION OF CONTAGIA. By Dr. G. V. Poore. 8vo, 256 pages. Illustrated. Longmans, Green & Co., New York.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. New Edition by Dr. Albert H. Buck. Vol. V. Quarto, 873 pages. Illustrated. William Wood & Company, New York.

A MANUAL OF DISSECTION AND PRACTICAL ANATOMY. Founded on Gray and Gerrish. By Drs. William T. Eckley and C. B. Eckley. 8vo, 408 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.